



## U.S. Department of Energy National Energy Technology Laboratory

3610 Collins Ferry Road  
P.O. Box 880  
Morgantown, WV 26507-0880

626 Cochran's Mill Road  
P.O. Box 0940  
Pittsburgh, PA 15236-0940

# NETL

*We Solve National Energy  
and Environmental Problems*

To: ALL PROSPECTIVE APPLICANTS

FINANCIAL ASSISTANCE SOLICITATION, NUMBER DE-PS26-00NT40772

### Development and Demonstration of Black Liquor/Biomass Gasification in the Forest Products Industry

The purpose of this executive summary letter is to highlight some important elements of the Program Solicitation. This letter is not an integral part of the solicitation. The solicitation is a self-contained document. In the event of any conflict between the contents of this executive summary letter and the contents of the solicitation, the solicitation language will prevail.

The Department of Energy (DOE), National Energy Technology Laboratory (NETL), is conducting this solicitation to competitively seek cost-shared applications for the development and demonstration of technologies which will enhance the U. S. Forest Products Industry economic competitiveness, improve energy efficiency, and reduce environmental impacts while providing quality products within the forest products industry. The focus of this solicitation will be to address priorities identified by the forest products industry in the *Agenda 2020 The Pathway Forward: An Implementation Plan*, which can be located at [www.oit.gov/forest/pathways/sld013.htm](http://www.oit.gov/forest/pathways/sld013.htm). DOE is looking to support the implementation of large-scale demonstration of cost-effective, energy efficient, gasification technologies for integrated gasification combined cycle or gasification/cogeneration applications. Competitive development of combined cycle, gasification technologies (for both black liquor and biomass feedstocks) is evolving. However, large-scale pilot plant or demonstrations are needed to promote widespread adoption of advanced gasification technologies in the Forest Products industry. Through this solicitation, NETL expects to support applications for the development and demonstration of Black Liquor and/or Biomass from forest products Gasification Systems. Applications must include design development, construction, and operation of demonstration size systems which are integrated into existing mills. **Fundamental scientific or basic research investigations are not sought.** However, in some instances, proposed technologies may not be ready for full demonstration. Consideration shall be given to feasibility (paper) study activities and to pilot-scale testing which may be necessary prior to design activities for the demonstration facility.

REPLY TO: Pittsburgh Office

Voice (412)386-4483

FAX (412)386-6137

[mundorf@netl.doe.gov](mailto:mundorf@netl.doe.gov)

<http://www.netl.doe.gov>

The solicitation is open for application submission with multiple closing dates. Any resultant awards are expected to be Cooperative Agreement instruments and will require cost sharing. Specific aspects related to (1) application evaluation, (2) application preparation instructions, (3) projected funding (including cost-sharing requirements), and (4) the timing sequence for application submissions, review, selection, and award of financial assistance instruments, can be found in the solicitation.

Blank areas appearing in the Model Cooperative Agreement (See Section VI, Attachment B) indicated by "[TBD]" will be completed prior to award. The solicitation is divided into six sections as follows:

Section I	Introduction
Section II	Conditions and Notices
Section III	Application Preparation Instructions
Section IV	Evaluation and Selection
Section V	Electronic Forms and/or Documents
Section VI	Attachments
	Attachment A--Program Technology Description
	Attachment B--Model Cooperative Agreement
	Attachment C--Non-Consent Form

The DOE is required to comply with the National Environmental Policy Act (NEPA). To assist the Department in completing the NEPA requirements, an environmental questionnaire is enclosed as Attachment C for completion by an applicant. It is desired to have the required NEPA process completed as soon as possible after award (See Article 2.22 "National Environmental Policy Act (NEPA) - Prior Approvals", of the Model Cooperative Agreement).

Applications submitted by DOE M&O contractors are not desired, will not be evaluated, and will not be eligible for an award under this solicitation. Applicants are encouraged to maximize the use of private sector organizations in the performance of the proposed effort. However, an application that includes performance by a DOE M&O contractor as a teammate will be evaluated and may be considered for an award, provided that: (1) the proposed use of any such entities is specifically authorized by the Department of Energy's Contracting Officer for the M&O Contractor; and (2) the work is not otherwise available from the private sector. For specific information, your attention is directed to Section VII, Conditions and Notices of this solicitation entitled "Participation By Department of Energy (DOE) Management and Operating (M&O) Contractors."

All requests for explanation or interpretation of any part of the solicitation shall be submitted in writing to the Contracting Officer's e-mail address given below. For each application submission cycle, the Contracting Officer must receive your written question(s) within 15 calendar days prior to the application due date to allow sufficient time for a reply, if any, to reach all prospective applicants. If the Government's response to any question is applicable to offerors in general, an amendment to the solicitation will be issued. All amendments will be posted on the NETL Homepage at "<http://www.NETL.doe.gov/business/solicit/>;" therefore, applicants are encouraged to periodically check the NETL Homepage to verify the posting of any such amendment.

For your information, it is recommended that all prospective applicants download a copy of the DOE “Lobbying Brochure” (<http://www.pr.doe.gov/lobbying.html>) which provides a summary of the statutory and regulatory restrictions regarding lobbying activities by Federal contractors and recipients.

All communications concerning this solicitation should cite the Program Solicitation number and be submitted by e-mail to the attention of William R. Mundorf at “mundorf@NETL.doe.gov”.

Sincerely,

Richard D. Rogus  
Contracting Officer  
Acquisition and Assistance Division

Development and Demonstration of Black Liquor/Biomass  
Gasification in the Forest Products Industry

**SECTION I - INTRODUCTION**

A.	Summary .....	1
B.	Background Information .....	1
C.	Solicitation Objectives .....	3

**SECTION II - CONDITIONS AND NOTICES**

A.	Award Instrument .....	4
B.	Cost Sharing .....	4
C.	Model Cooperative Agreement .....	4
D.	Application Preparation Costs .....	4
E.	Commitment of Public Funds .....	4
F.	Availability of Funds .....	4
G.	Number of Awards .....	5
H.	Pre-Application Conference .....	5
I.	False Statements .....	5
J.	Qualification Criteria .....	5
K.	DOE Issuing Office .....	5
L.	Amendment of the Solicitation .....	6
M.	Acknowledgment of Amendments to Solicitation .....	6
N.	Catalog of Federal Domestic Assistance Number .....	6
O.	Applicant Eligibility .....	6
P.	Time, Date and Place Applications Are Due .....	7
Q.	Fee and Profit .....	7
R.	Davis-Bacon Act .....	7
S.	Responsible Applicants .....	8
T.	Application Delivery Information .....	8
U.	Treatment of Proprietary Information .....	8
V.	Unnecessarily Elaborate Applications .....	9
W.	Telegraphic and E-Mail Applications .....	9
X.	Late Applications, Amendments of Applications and Withdrawals of Applications . . .	9
Y.	Evaluation Personnel .....	10
Z.	DOE Treatment of Application Information .....	10
AA.	Application Clarification .....	10
BB.	Award Without Discussions .....	10
CC.	Government Right to Reject or Negotiate .....	10
DD.	Anticipated Selection Dates .....	11
EE.	Information of Award .....	11
FF.	Effective Period of Application .....	11
GG.	Disposition of Applications .....	11
HH.	Executive Order 12372 .....	11
II.	Period of Performance .....	11
JJ.	Simpson-Craig Amendment .....	11

KK. Minority Economic Impact Loan . . . . .	12
LL. Debriefings . . . . .	12
MM. <i>Intentionally left blank</i> . . . . .	12
NN. Additional Eligibility Requirements of the Energy Policy Act of 1992 . . . . .	12
OO. Performance of Work in the United States . . . . .	13
PP. National Environmental Policy Act Strategy . . . . .	13
QQ. Pre-Selection Project-Specific Environmental Questionnaire . . . . .	14
RR. Post-Selection Environmental Review . . . . .	14
SS. Post-Award Environmental Monitoring . . . . .	14
<b>SECTION III - APPLICATION PREPARATION INSTRUCTIONS . . . . .</b>	<b>15</b>
A. Application Requirements . . . . .	15
B. Scope and Appropriate Activities for Proposed Projects . . . . .	15
C. Overall Arrangement of Application . . . . .	17
C.1 Volume I - Business and Financial Application . . . . .	17
C.2 Volume II - Technical Application . . . . .	20
<b>SECTION IV- EVALUATION AND SELECTION . . . . .</b>	<b>26</b>
A. Introduction . . . . .	26
B. General . . . . .	26
C. Preliminary Evaluation (Qualification Criteria) . . . . .	26
D. Comprehensive Evaluation . . . . .	27
E. Technical Evaluation Criteria . . . . .	27
F. <i>Intentionally Left Blank</i> . . . . .	28
G. Cost Information Evaluation Criteria . . . . .	28
H. Relative Ranking of Technical Criteria . . . . .	28
I. Program Policy Factor(s) . . . . .	29
J. Basis For Selection and Award . . . . .	29
<b>SECTION V - ELECTRONIC FORMS AND/OR DOCUMENTS . . . . .</b>	<b>31</b>
<b>SECTION VI - ATTACHMENTS</b>	
A -- Program Technology Description . . . . .	A-1
B -- Model Cooperative Agreement . . . . .	B-1
C -- Non-Consent Form . . . . .	C-1

Development and Demonstration of Black Liquor/Biomass  
Gasification in the Forest Products Industry

**SECTION I -- INTRODUCTION**

**A. Summary**

The Department of Energy (DOE), National Energy Technology Laboratory (NETL), is conducting this solicitation to competitively seek cost-shared applications for the development and demonstration of technologies which will enhance the U. S. Forest Products Industry's economic competitiveness, improve energy efficiency, and reduce environmental impacts while providing quality products within the forest products industry. The focus of the solicitation will be to address priorities identified by the forest products industry in the *Agenda 2020 The Path Forward: An Implementation Plan*. DOE is looking to support the implementation of large-scale demonstration of cost-effective, energy efficient, gasification technologies for integrated gasification combined cycle or gasification/cogeneration applications. Competitive development of combined cycle, gasification technologies (for both black liquor and biomass feedstocks) is evolving. However, large-scale pilot plant or demonstrations are needed to promote widespread adoption of advanced gasification technologies in the Forest Products industry. Through this solicitation, NETL expects to support applications in the development and demonstration of Black Liquor and/or Biomass from forest products Gasification Systems.

This solicitation will be open to receive qualifying applications through June 1, 2000. Applications will be evaluated and selections made during two evaluation periods. The application due date for the first evaluation period is *February 29, 2000 and the second is June 1, 2000*.

It is anticipated that multiple financial assistance awards, Cooperative Agreements, will result from this solicitation. Subject to the availability of funds, DOE expects to provide up \$100 million in cost-shared awards. Periods of performance for all projects are up to eight years though expected duration of projects is three to five years. The DOE cost share shall not exceed 50% of the overall total estimated cost of the project.

**B. Background Information**

The U.S. Department of Energy supports industries in their efforts to increase energy efficiency, minimize waste, reduce environmental impacts, and increase productivity. The goal of this support is to accelerate the development and use of advanced energy efficient, renewable, and pollution prevention technologies that benefit industry, the environment, and U.S. energy security. DOE's core program is the Industries of the Future Program, which focuses on the most energy and waste intensive industries, such as the Forest Products Industry.

In 1994, the forest products industry and the Secretary of Energy signed a compact to develop a research and development strategy and industry vision, known as Agenda 2020. This vision is the forest, wood and paper industry's perspective of where the industry stands today, a desired

state for the industry twenty years into the future, and the technology-related issues that must be addressed to accomplish the industry's vision of the future. Execution of Agenda 2020 is carried out within each of six Task Groups – energy performance, environmental performance, capital effectiveness, sustainable forestry, recycling and sensors and controls. Three of the six Task Group areas consider gasification technologies as a key priority.

The process of developing the industries' vision and research agenda has been led by a CEO level working group and composed of CEOs representing the full spectrum of industrial interests. This group, through the AF&PA's board of directors, established the policies under which Agenda 2020 operates. Selection and guidance of specific programs is provided by the Chief Technology Officers working group, which is made up of co-chairs of each of the six operating Task Groups and other technology leaders.

In May 1998, the AF&PA CEO Advisory Group on Climate Change agreed to support viable biomass and black liquor gasification mill demonstrations due to increasingly stringent environmental regulations, global competitiveness, and timing of the capital replacement cycle. Broad scale adoption of these technologies will result in the forest products industry becoming a stable electric power generator and more competitive in a global market. Additionally, the potential for reducing greenhouse gases is as much as 30 million metric tons per year by 2020. Because of the age of the recovery and power boilers, there is a limited time frame to demonstrate advanced technologies. Due to the diverse needs in the industry, multiple technologies need to be demonstrated in order to promote widespread adoption. However, the risk associated with demonstrating large-scale systems is too burdensome for one company to endure. Therefore, the Forest Products industry and DOE have agreed to work together to demonstrate biomass and black liquor gasification technologies. The objective of this solicitation is to support this pledge by funding the development and demonstration of biomass and black liquor gasification projects.

The industry is looking for a path forward to demonstrate cost-effective, energy efficient, gasification technologies for integrated gasification combined cycle or gasification/cogeneration applications to provide an alternative to replace an aging fleet of recovery furnaces. Competitive development of combined cycle, gasification technologies (for both black liquor and biomass feedstocks) is evolving but at a slow rate. Scale-up to commercial systems is the principal hurdle blocking the industry's advancements since the capital intensity and risk associated with first demonstrations are typically more than a single company can undertake. Gasification systems will be installed in existing domestic mills that have the potential to demonstrate the viability and applicability to other sites. In potential projects, how the capital intensity and risks of commercial demonstration will be minimized is a key issue which must be addressed. The technical gaps which must be surmounted before commercialization of these technologies using these two feedstocks are understood to be:

Black liquor gasification -- Materials of construction with known life expectancy, gas clean-up and demonstration of integrating gasification, power cycle and pulp mill systems are critical technical areas. For systems employing cold gas clean-up, the key gaps are physical scale-up of the gasification processes under development and commercial demonstration. For

systems with hot gas clean up, the clean-up system itself must be added as a serious technology gap.

Biomass gasification -- The key gaps are demonstration of tars and condensable organic compound clean-up, physical scale-up, and commercial demonstration of the integrated gasification combined cycle systems. For systems using low-temperature gasification, destruction/removal of tars and other condensables is also an issue and must be proven on a pilot scale.

### **Black Liquor/Biomass Gasification Relationship to Bioenergy Initiative**

This effort is part of a broader program within the Department of Energy's Office of Energy Efficiency and Renewable Energy, known as the Bioenergy Initiative. The goal of the Bioenergy Initiative is to accelerate the use of fuels, energy crops, and feedstocks in power generation, industrial processing and manufacturing, and transportation areas. This effort will provide an integrated, long-term strategy with the chemical, forestry, agricultural and energy communities and will help strengthen the nation's energy and economic security, protect the environment and revitalize rural areas with new markets and revenue streams.

### **C. Solicitation Objectives**

The objective of this Program Solicitation is to provide financial support to the development and demonstration of black liquor/biomass gasification technologies. This is to be completed at the commercial demonstration scale at existing mill sites by a joint DOE and Forest Products Industry partnership. If proven, these technologies offer great potential for improved capital effectiveness, energy efficiency, environmental performance, global competitiveness, and safety in the forest, wood, and paper industry. These advantages will be gained from:

- the ability to increase electrical power production capacity by over 200%
- providing the potential to positively impact greenhouse emissions by over 30 million metric tons of carbon per year
- making available these technology options early enough for the majority of U.S. industry to utilize them in normal capital replacement decisions, and
- providing U.S. facilities with significantly more effective and efficient power houses compared to currently growing segment of the global industry.



## SECTION II -- CONDITIONS AND NOTICES

### A. Award Instrument

It is anticipated that multiple financial assistance awards, specifically Cooperative Agreements, will result from this solicitation.

### B. Cost Sharing Requirements

In accordance with 10 CFR 600.30, the DOE cost share shall not exceed 50% of the **total estimated cost of the project**. The cost share may be distributed differently over different types of activities through the various phases, chiefly Budget Period 1, of each project. Though negotiable, it is expected that feasibility study efforts will be shared 50%, whereas research activities are to be shared not less than 20% by DOE. Pilot plant design, fabrication, and testing is to be shared not less than 35% by DOE. Engineering, procurement, construction, and operation of the demonstration facility is to be cost shared at least 50% by the awardee. The cost share may include otherwise allowable costs as in-kind contributions. Cost sharing must meet the requirements of 10 CFR Sections 600.123 and 600.224. Allowable costs for cost sharing shall be in accordance with 10 CFR 600.127 and 10 CFR 600.22.

### C. Model Cooperative Agreement

Cooperative Agreements awarded under this solicitation will be in the format of the Model Cooperative Agreement included in this solicitation as Attachment B.

### D. Application Preparation Costs

This solicitation does not obligate the Government to pay any costs incurred in the preparation and submission of applications, or in making necessary studies or designs for the preparation thereof or to acquire, or contract for any services.

### E. Commitment of Public Funds

The Contracting Officer is the only individual who can legally commit the Government to the expenditure of public funds in connection with the proposed Cooperative Agreement. Any other commitment, either explicit or implied, is invalid.

### F. Availability of Funds

Subject to the availability of funds in the technical areas proposed, DOE expects to provide \$100 million over the life of the program for awards under this solicitation.

**G. Number of Awards**

The exact number of awards is unknown. Multiple awards in each of the two program Areas of Interest may be made if, after the evaluation process identified in Section IV of this document has been completed, sufficient applications prove to be meritorious. DOE anticipates making a total of approximately 2-4 total awards over the open period for the solicitation.

The Government reserves the right to fund, in whole or in part, any, all, or none of the applications submitted in the response to this solicitation, and will award that number of financial assistance instruments that serves the public purpose and is in the best interest of the Government.

**H. Pre-Application Conference**

A pre-application conference is not planned.

**I. False Statements**

Applications must set forth full, accurate and complete information as required by this solicitation (including attachments). The penalty for making false statements in such documents is prescribed in 18 U.S.C. 1001.

**J. Qualification Criteria**

Applicants are advised that qualification criteria are detailed in Section IV, Paragraph C “Preliminary Evaluation.” Failure to meet all the criteria may result in the application being eliminated from further competition, and may not be considered for comprehensive evaluation.

**K. DOE Issuing Office**

U. S. Department of Energy  
National Energy Technology Laboratory  
Wallace Road  
P. O. Box 10940, MS 921  
Pittsburgh PA 15236-0940

**Point of Contact:** Contract Specialist: William R. Mundorf  
Telephone: (412) 386-4483  
e-mail address: [mundorf@NETL.doe.gov](mailto:mundorf@NETL.doe.gov)

E-mail is strongly encouraged for the submission of questions.

**L. Amendment of the Solicitation**

The only method by which any term of this solicitation may be amended is by an express, formal amendment to the solicitation generated by the issuing office. No other communication, whether oral or in writing, will amend or supersede the terms of this solicitation.

Amendments to the solicitation will be posted on NETL's Website at "<http://www.netl.doe.gov/business/solicit/>".

**M. Acknowledgment of Amendments to Solicitation**

The applicant must acknowledge receipt of amendments in Volume I - Business and Financial Application, per the instructions contained therein.

**N. Catalog of Federal Domestic Assistance Number**

CFDA Number 81.079 applies.

**O. Applicant Eligibility**

Eligibility for participation in this Program Solicitation is considered to be full and open and all interested parties may apply except as set forth below:

Participation Department of Energy (DOE) Management and Operations (M&O) Contractors

Applications submitted by, or on behalf of: (1) another Federal agency; (2) a Federally Funded Research and Development Center sponsored by a Federal agency; or (3) a Department of Energy (DOE) Management and Operating (M&O) contractor are not desired, will not be evaluated, and will not be eligible for an award under this solicitation.

However, an application that includes performance by a DOE M&O contractor as a teammate will be evaluated and may be considered for award, provided that: (1) the proposed use of any such entities is specifically authorized by the Department of Energy's Contracting Officer for the M&O contractor. The review and approval process for M&O participation will be similar to the review and approval required by DOE O 481.1 WORK FOR OTHERS (NON-DEPARTMENT OF ENERGY FUNDED WORK); and (2) the work is not otherwise available from the private sector.

The M&O work effort should be defined between the applicant and the M&O contractor; however, if approved, the M&O effort would not be accomplished through a contract with the recipient as defined in 10 CFR 600.3 of the DOE Financial Assistance Rules, and administered in accordance with 10 CFR 600.140-149 (or 10 CFR 600.236, as applicable), but would be accomplished through a direct transfer of funding from the DOE procuring activity to the M&O and/or laboratory entity. Accordingly, DOE will fund the M&O work effort as negotiated under

its contract with the M&O and the recipient will be responsible for ensuring that the work is performed.

**P. Time, Date and Place Applications Are Due**

Applications submitted through the U.S. Postal Service, overnight service companies, courier, or hand-delivery must be received at or sent to:

U.S. Department of Energy  
National Energy Technology Laboratory  
Attn: William R. Mundorf  
Wallace Road  
P. O. Box 10940, MS 921-143  
Pittsburgh PA 15236-0940

ALL APPLICATIONS MUST BE RECEIVED BY 2:00 P.M., LOCAL TIME, ON *FEBRUARY 29, 2000* FOR THE FIRST EVALUATION; *JUNE 1, 2000* FOR THE SECOND EVALUATION.

Applications that are not received by 2:00 p.m., local time, on *February 29, 2000*, will be retained and evaluated during the second evaluation. Applications not received by 2:00 p.m., local time, for the subsequent due date will be considered late applications and will not be evaluated. Applicants are encouraged to submit applications at the earliest possible evaluation period.

**Q. Fee and Profit**

Fee or profit will not be paid to the recipients of financial assistance awards resulting from this solicitation.

**R. Davis-Bacon Act**

The Act is applicable to construction efforts included in projects resulting from this solicitation. Davis-Bacon Act requirements include minimum hourly rates (published by the Department of Labor and based on geographic locations); post-award conferences and on-site interviews; and submission of certified payrolls. Specific labor rates are dependent on the location of the proposed construction and will be provided to the proposer upon request to the Contract Specialist.

**S. Responsible Applicants**

The standards for responsible applicants are contained in 10 CFR 600. DOE reserves the right to make a pre-award review of the applicant's ability to manage and account for a DOE Cooperative Agreement if awarded, or to determine compliance with generally applicable requirements.

**T. Application Delivery Information**

The outside of the package containing the application should clearly indicate the Solicitation Number and the number of the Program Area of Interest against which the application is being submitted.

**1. Signed Originals**

Copy No. 1 of Volumes I and II should contain the signed original of all documents requiring signature by the applicant. Use of reproductions of signed originals is authorized in all other copies of the application. (See Section III, Paragraph C.)

**2. Hand-Carried Applications**

Applicants electing to hand-carry applications assume the full responsibility of ensuring that the application is received at the place and by the date and time specified in Paragraph P of this section. Such applications should be closed and sealed as if for mailing.

**U. Treatment of Proprietary Information**

Applications submitted in response to this solicitation may include technical data and other data, including trade secrets and/or privileged or confidential commercial or financial information, which the applicant does not want disclosed to the public or used by the Government for any purpose other than application evaluation. To protect such data, the applicant shall specifically identify each page including each line or paragraph thereof containing the data to be protected and insert a page following the cover letter of the application (SF-424) with the following notice:

**NOTICE**

The data contained on page(s) \_\_\_\_\_ of this application have been submitted in confidence and contain trade secrets and/or privileged or confidential commercial or financial information, and such data shall be used or disclosed only for evaluation purposes, provided that if a Cooperative Agreement is made as a result of or in connection with the submission of this application, the Government shall have the right to use or disclose the data herein to the extent

provided in the Cooperative Agreement. This restriction does not limit the Government's right to use or disclose data that it obtains without restriction from any source, including the application.

#### **V. Unnecessarily Elaborate Applications**

Unnecessarily elaborate brochures or other presentations beyond those sufficient to present a complete and effective response to this solicitation are not desired and may be construed as an indication of the applicant's lack of cost consciousness. Elaborate art work, expensive paper and bindings, and expensive visual and other presentation aids are neither necessary nor wanted.

#### **W. Telegraphic and E-Mail Applications**

Telegraphic applications will **NOT** be considered, although applications may be amended by telegraphic notice provided such notice is received prior to the date and time specified for receipt. The term "Telegraphic" includes both mailgrams and facsimile submissions. Applications submitted by e-mail or other electronic means will **NOT** be considered.

#### **X. Late Applications, Amendments of Applications and Withdrawals of Applications**

1. An application or amendment of an application shall be timely if it is:
  - (a) Received at the location on or before any of the deadline dates and times specified in Paragraph P of this section; or
  - (b) Received after the deadline, and was sent by first class mail, was postmarked on or before the deadline date, and is received by DOE before technical evaluation of all acceptable applications submitted in response to the solicitation begins. Applicants should obtain a legibly dated mailing receipt from the U.S. Postal Service or use certified or registered mail to enable them to substantiate the date of mailing. Private metered postmarks shall not be acceptable proof of the date of mailing.
2. DOE shall return an application that does not meet the requirements of (a) or (b) above. DOE may return an application that does not include all information and documentation required by the solicitation, if in the judgement of the DOE Contracting Officer, the nature of the omission precludes review of the application.
3. Applications or amendments of applications may be withdrawn by written notice at any time before award. Written notice includes e-mails and facsimiles. An authorized representative may withdraw applications in person, if the representative's identity is made known and the representative signs a receipt for the application before award.

**Y. Evaluation Personnel**

Applications will be evaluated in accordance with the criteria set forth in Section IV of the solicitation. In conducting this evaluation, the Government may utilize assistance and advice from qualified personnel from other federal agencies, DOE contractors, universities, and industry. *Applicants not wishing to have their applications evaluated by non-federal personnel shall indicate their “non-consent” by completing Attachment C and including it in Volume I. Applicant are further advised that DOE may be unable to consider an application withholding such consent.*

**Z. DOE Treatment of Application Information**

In the event personnel from other Federal agencies, DOE contractors, or other consultants are utilized to assist DOE in the evaluation of applications, DOE may, if necessary, obtain assurances, in advance, from all evaluators that proprietary information contained in an application will be kept confidential. Note that other Federal agency and DOE contractor employees currently work under existing non-disclosure/confidentiality agreements.

**AA. Application Clarification**

DOE reserves the right to require applications to be clarified or supplemented to the extent considered necessary either through additional written submissions or oral presentations.

**BB. Award Without Discussions**

Notice is given that award may be made after few or no exchanges, discussions or negotiations. Therefore, all applications should be submitted initially on the most favorable technical, cost and other terms to the Government that the applicant can submit.

**CC. Government Right to Reject or Negotiate**

The Government reserves the right, without qualification, to reject any or all applications received in response to this solicitation and to select any application, in whole or in part, as a basis for negotiation and or award.

**DD. Anticipated Selection Dates**

The following reflects the anticipated selection dates by evaluation period. Cooperative Agreements are expected to be awarded within 90 calendar days following the selection.

<u>Evaluation Period</u>	<u>Anticipated Selection Date</u>
1	March 30, 2000
2	July 1, 2000

**EE. Information of Award**

Written notice to unsuccessful applicants and Cooperative Agreement award information will be promptly released in accordance with DOE regulations applicable to financial assistance awards.

**FF. Effective Period of Application**

All applications are required to remain in effect for at least 180 calendar days from the due date to which the applications are responsive.

**GG. Disposition of Applications**

Applications will not be returned except for timely withdrawals or as otherwise specified in this section.

**HH. Executive Order 12372**

Applications submitted in response to this solicitation are not covered by Executive Order 12372--Intergovernmental Review of Federal Programs.

**II. Period of Performance**

It is anticipated that the duration of activities will not exceed eight years. Projects can be less than three years in duration, but it is anticipated that most projects will fully demonstrate their subject technology within five years. Awards longer than one year will be subject to the availability of funds.

**JJ. Simpson-Craig Amendment**

Organizations that are described in Section 501(c)(4) of the Internal Revenue Code of 1986 and engage in lobbying activities after December 31, 1995, shall not be eligible for the receipt



of Federal funds constituting an award, grant, or loan. Section 501(c)(4) of the Internal Revenue Code of 1986 covers:

“Civic leagues or organizations not organized for profit but operated exclusively for the promotion of social welfare, or local associations of employees, the membership of which is limited to the employees of a designated person or persons in a particular municipality, and the net earnings of which are devoted exclusively to charitable, educational or recreational purposes.”

Lobbying activities are defined broadly to include, among other things, contacts on behalf of an organization with specified employees of the Executive Branch and Congress with regard to Federal legislative, regulatory and program administrative matters.

Applicants must submit the Simpson-Craig Amendment Representation found in the assurance submission requirements of this solicitation (See Section III, C.1, B., 3.).

#### **KK. Minority Economic Impact Loan**

No loans are available under the DOE Minority Economic Impact (MEI) loan program.

#### **LL. Debriefings**

Applicants may submit an application more than once (i.e., after application is rejected) within the solicitation period. Each unsuccessful applicant will be offered the opportunity for an explanation or debriefing as to why the application was not selected. Debriefings will be conducted at the earliest feasible time.

#### **MM. *Intentionally left blank***

#### **NN. Additional Eligibility Requirements of the Energy Policy Act of 1992**

Applications proposing technology development that falls under Titles XX-XXIII of the Energy Policy Act (P.L. 102-486) are subject to the eligibility requirements stated in Section 2306 of the Act. Such technologies include but are not limited to fuels cells, advanced turbines and natural gas end-use technologies. An applicant private sector firm shall be eligible to receive financial assistance under this section only if it is a United States-owned company, or the firm is incorporated in the United States and has a parent company which is incorporated in a country which affords treatment to United States-owned companies that is comparable to treatment the United States affords foreign-owned companies in the following areas: access to government-supported joint ventures in energy research and development, local investment opportunities, and protection of intellectual property.

In addition, the applicant must show that the project, as a whole, is in the economic interest of the United States. To fulfill this requirement, the applicant must consider the contributions of

all recipients in the project, including any contractors or suppliers that the applicant has named and relied upon in its application. This can be evidenced by: (1) investment in the United States in research, development, and manufacturing, such as the manufacture of major components or subassemblies in the United States; (2) significant contributions to employment in the United States; (3) agreement with respect to any technology arising from assistance provided under this solicitation to promote the manufacture within the United States of products resulting from that technology, taking into account the goals of promoting the competitiveness of United States industry, and to procure parts and materials from competitive suppliers.

For-profit organizations proposing work under Titles XX-XXIII shall complete the EPAct Section 2306 certification provided in the Financial Assistance Assurance Package (See Section III, C., C.1, B.3.) of the solicitation. In the event that information provided in the application is insufficient for DOE to make the required eligibility determination, DOE may request additional information from the applicant.

#### **OO. Performance of Work in the United States**

As a condition of award under this solicitation, applicants must agree that at least 75% of the direct labor cost for the project (including subcontractor labor) will be incurred in the United States unless the applicant can demonstrate to the satisfaction of DOE that the United States economic interest will be better served through a greater percentage of the work performed outside the United States. For example, an applicant may provide evidence that expertise to develop a technology exists only outside the United States, but that ultimate commercialization of the technology will result in substantial benefits to the United States such as increased employment, increased exports of U.S.-manufactured products, etc.

#### **PP. National Environmental Policy Act Strategy**

The National Environmental Policy Act of 1969 (NEPA) establishes a national policy to ensure that consideration is given to environmental values and factors in Federal planning and decision making. The Department of Energy's policy is to comply fully with the letter and spirit of NEPA. To ensure that environmental factors are considered in the decision making process and to promote environmentally responsible decisions, DOE incorporates NEPA requirements early in the planning process for proposed actions. Consistent with Council on Environmental Quality (CEQ) NEPA regulations (40 CFR Parts 1500-1508) and DOE NEPA regulations (10 CFR Part 1021), an overall strategy for compliance with NEPA has been developed. This includes performing project-specific environmental reviews under 10 CFR 1021.216 of environmental issues pertinent to each proposed project before projects are selected, followed by site-specific environmental reviews under NEPA of each project after DOE selection. It is probable that most, if not all, of the projects proposed under this solicitation will require the preparation of an environmental assessment or environmental impact statement.

No action taken by DOE with regard to any application prior to the completion of the site-specific analysis, including project selection or award, shall be a final decision for purposes of compliance with NEPA.

#### **QQ. Pre-Selection Project-Specific Environmental Questionnaire**

For Applications that undergo comprehensive evaluation, DOE will review under 10 CFR 1021.216, project-specific environmental information supplied by the applicant on the Environmental Questionnaire which is submitted as part of Volume I, Business and Financial application. The environmental information provided by the applicant is independently evaluated by DOE and documented in the form of an environmental critique, which may also include supplemental information developed by DOE. Subsequently, DOE prepares a publicly available environmental synopsis to document the consideration given to environmental factors and to record that the relevant environmental consequences of reasonable alternatives have been evaluated in the selection process.

#### **RR. Post-Selection Environmental Review**

Soon after selection, which shall be contingent as specified in 10 CFR 1021.216(i), depending on the information necessary to satisfy NEPA, applicants may be requested to provide additional environmental information which is more detailed than that provided on the Environmental Questionnaire of this solicitation. This detailed site-and project-specific information may be used as the basis for site-specific NEPA documents prepared by DOE for each selected project. Such NEPA documents shall be prepared, considered, and published by DOE in full conformance with the requirements of the CEQ regulation and DOE NEPA regulations. DOE must complete its appropriate NEPA process before a go/no go decision and before a recipient may proceed with detailed design under the award.

#### **SS. Post-Award Environmental Monitoring**

Each resulting award will specify the monitoring and reporting requirements necessary to ensure compliance with applicable environmental regulations, and permits obtained from Federal, state and local government agencies and DOE NEPA regulations.

### SECTION III -- APPLICATION PREPARATION INSTRUCTIONS

#### A. Application Requirements

The application shall be prepared as set forth herein to provide a standard basis for evaluation and to ensure that each application will have a uniform format. These instructions are not to be included in your application.

Applications shall be prepared in accordance with this section. To aid in evaluation, applications shall be clearly and concisely written as well as being neat, indexed (cross-indexed as appropriate) and logically assembled. All pages of each part shall be appropriately numbered and identified with the name of the applicant, the date and the solicitation number to the extent practicable.

Each application should clearly demonstrate the applicant's capability, knowledge, and experience in regard to the requirements described herein. Failure to respond or follow the instructions regarding the organization and content of the application may result in the application being deemed unacceptable.

DOE may return an application that does not include all information and documentation required by statute, 10 CFR Part 600, or the solicitation when the nature of the omission precludes review of the application.

During the review of a complete application, DOE may request the submission of additional information if the information is essential to evaluate the application.

#### B. Scope and Appropriate Activities for Proposed Projects

DOE believes that the demonstration of gasification technologies for integrated gasification combined cycle or gasification/cogeneration applications installed within pulp and paper mills will provide significant improvement in cost-effectiveness and energy efficiency. Although competitive development of combined cycle, gasification technologies (for both black liquor and biomass feedstocks) is ongoing, only large-scale pilot plant or demonstrations can successfully promote widespread adoption of advanced gasification technologies in the Forest Products industry. Projects will be limited to eight years or less, but it is expected that successful demonstrations will be achieved in as early as three years.

The Department considers that proposed projects will consist of appropriate activities which will be targeted to improve the processing of Black Liquor and Biomass from forest products using gasification systems. Regardless of the state of development, for the purposes of this solicitation, the proposed project should comprise the logical next steps in the initial industrial demonstration of the technology or methods. Efforts must include design development, construction, and operation of demonstration size systems which are integrated into existing mills. **Fundamental scientific or basic research investigations are not sought. However,**

**in some instances, proposed technologies may not be ready for full demonstration.**

Additional consideration should be given to feasibility paper study activities and to proof-of-concept testing which needs to be conducted at pilot-scale units prior to design activities for the demonstration facility. DOE also recognizes that supporting analytical work and small-scale experimental studies and testing in support of operation of the demonstration plant may be needed before and/or after initial operation.

For the purposes of this solicitation, the definition of maturity stages for technologies are considered to be; a) Concept, b) Feasibility, c) Development/Pilot Plant, and d) Demonstration stages. The objectives of each of these stages from both the technical and business perspectives are defined as:

- a. Conduct initial investigations of an idea to confirm its technical feasibility at the lab scale and to investigate its market potential
- b. Further investigate the concept to confirm practical feasibility and to establish existence of market opportunity
- c. Finalize the technology concept by demonstrating all critical performance targets at the appropriate pilot plant scale and to prove market potential
- d. Demonstrate the technology at a scale representative of commercial systems and to prove industrial intent and ability to commercialize/deploy

The expected scope, and appropriate activities included in proposed projects under this solicitation are to be principally in stages c and d.

**Black Liquor Gasification Systems:** Kraft black liquor and semi-chem caustic-carbonate liquor are mixtures of dissolved organic components resulting from the processing of wood, inorganic cooking chemicals, and water. Though concentrated by multiple effects evaporators, these liquors still contain a high percentage of water and have sufficient heating value to be considered low quality fuels. The technical topic is for safe, integrated gasification systems which can permit the separation and recovery of the inorganic cooking chemicals while concurrently producing a combustible product gas from the organics. This product gas after cleaning must be a viable low-to-medium caloric value fuel. Key technical gaps that require demonstration include: materials of construction with known life expectancy, gas clean-up and demonstration of integrating gasification, power cycle and pulp mill systems. For systems employing cold gas clean-up, the key gaps are physical scale-up of the gasification processes under development and commercial demonstration. For systems with hot gas clean up, the clean-up system itself must be considered as a technology gap; and

Forest Products Biomass Gasification Systems: Wood room waste or hog fuel is conventionally burned in specifically designed boilers so as to capture a portion of the valuable energy sources found in Forest Products mills. They suffer from low power-to-steam output ratio and high capital and maintenance costs. The technical topic is for gasification systems which can utilize these fuels being mostly half water by weight and to produce a higher quality fuel gas. Such systems are required to be able to be integrated with gas turbines and steam turbines for electric power generation. These biomass gasification combined cycle systems must be able to offer a positive contribution to the reduction of greenhouse gas emissions. For systems using low-temperature gasification, destruction/removal of tars and other condensable organic compound clean-up, physical scale-up, and commercial demonstration of the integrated gasification combined cycle systems is an issue and must be proven on a pilot scale.

### C. Overall Arrangement of Application

The application shall consist of two physically separate volumes, individually titled as follows:

<u>VOLUME</u>	<u>ORIGINAL</u>	<u>NUMBER OF COPIES</u>
Volume I - Business and Financial Application	1	2
Volume II - Technical Application	1	6

**The Originals of all Volumes and the two copies of Volume I should be wrapped as one package; all copies of Volume II should be wrapped as a separate package. The outside of each package should clearly identify the solicitation number and the volumes in the package.**

#### C.1 Volume I--Business and Financial Application

##### A. General

1. Volume I, Business and Financial Application, consists of the required application coversheet, application forms, assurances package, budget pages, environmental questionnaire, other statements of the offeror, exceptions and deviations, and any other business and financial information.
2. The application identified as the original shall contain all of the original signatures of the documents requiring signature by the applicant. Use of reproductions of signed originals is authorized in all other copies of the application.
3. The Applicant shall provide a minimum cost share as described in Section II of this solicitation.
4. All forms needed for preparation of Volume I are found on the NETL Homepage at: <http://www.NETL.doe.gov/business/forms/forms.html> in either WordPerfect or PDF

format, and are referenced under Section V of the solicitation. Please note that all forms were developed using WordPerfect 6.1 and formatted for printing using an HP LaserJet IIISi printer. Questions on completion of the forms should be addressed to the Contract Specialist.

**B. Format and Content**

Volume I, Business and Financial Application, shall include the following documents (in the order listed):

1. Volume I - Business and Financial Application Coversheet

The Application Coversheet for Volume I shall contain the following information:

Solicitation Number  
 Due Time and Date of Applications  
 Name and Address of Proposer  
 Point of Contact  
 Telephone/FAX Number  
 Title of Project  
 Program Area of Interest (if applicable)  
 Notice of Restriction on Disclosure and Use of Data (See Section I, Paragraph U)

2. Application for Federal Assistance -- Standard Form 424
3. Financial Assistance Assurance Package -- Filename: **assure.fa**
4. Budget Page(s)

The applicant must provide a detailed budget information on one or more of the following budget forms. Supporting cost data shall be submitted as indicated by the instructions.

Failure to provide the detailed cost information as described in the instructions will result in an incomplete package. If a minimum cost share is required by this solicitation, the applicant shall stipulate in the application the source and amount of cost sharing and the value of third party in-kind contributions proposed to meet the requirement.

- a. Federal Assistance Budget Information -- DOE F 4600.4 -- **Form #D4600.4**
  - b. Budget Page -- DOE F 4620.1 -- **Form # D4620.1**
  - c. Grant Application Project Period Summary -- ER F 4620.1A -- **Form #ERF4620**
  - d. Budget Information -Non-Construction Programs -- SF424a -- **Form #SF424a**
5. Environmental Questionnaire -- Filename **nepasol**

6. Statement of “non-consent” for non-federal personnel evaluation of the application, if applicable.
7. Acknowledgment of Amendments -- The applicant shall specifically indicate their acknowledgment and receipt of the amendment(s) posted on the NETL Website at <http://www.netl.doe.gov/business/solicit/> by signing the amendment and including it in Volume I or stating the receipt of the amendment in the text of Volume I.
8. Additional Application Submission Requirements for FFRDC’s, DOE M&O Contractors or Laboratory Entities

In addition to the application information to be provided by the applicant as set forth in other parts of this Section, the following additional requirements apply for Federally Funded Research and Development Centers (FFRDC’s), DOE M&O Contractors, and/or laboratory entities :

1. Justification.

The offeror shall submit a letter with its application (Volume I) which states that to the best of its knowledge, the work requested will not place the FFRDC or the DOE M&O contractor in direct competition with the domestic private sector, and that the proposed scope of work cannot be performed by any private entity.

2. Work Scope.

The offeror shall submit a detailed scope of work which clearly identifies that portion of the proposed effort for which the expertise and ability to perform lie solely with the DOE M&O contractor, FFRDC’s or laboratory. This detailed scope of work shall be provided as an appendix to the Volume II, Technical Application.

3. Cost Information.

The offeror shall provide cost information for that portion of the proposed work scope (see 2, above) to be performed by the DOE M&O contractor. The cost information shall be furnished in the same format and level of detail as prescribed for subcontractors. The estimated cost of the effort shall be clearly identified in the Volume I, Business and Financial Application.

9. Exceptions and Deviations

- a. The applicant shall identify and explain any exceptions or deviations taken or conditional assumptions made with respect to the model Cooperative



Agreement, the requirements of this section, and any other matters associated with this solicitation.

- b. Any exceptions taken must contain sufficient amplification and justification to permit evaluation. The benefit to the Government shall be explained for each exception taken. Such exceptions will not, of themselves, automatically cause an application to be termed unacceptable. A large number of exceptions, or one or more significant exceptions not providing benefit to the Government, however, may result in rejection of your application(s) as unacceptable.

## C.2 Volume II--Technical Application

### A. General

The applicant shall include a technical discussion in the format specified below. This format relates to the technical evaluation criteria, Section IV - E. Applicants are asked to follow the outline shown on the following page. Alternate heading names and additional headings may be included as desired. The "Technical Volume" should not exceed **50 pages 8 ½" x 11" (single spaced) sheets or 25 (25) double-sided sheets, type double-spaced, with a font-size of no less than 10 pts. It is preferable that applicants submit double-sided sheets.** Submissions of greater length will be judged by DOE to detract from the quality of the application. The page count shall exclude the front and back cover, Cover Sheet, Public Abstract, the table of Contents, resumes, and letters of Commitment.

To ensure that the technical application is evaluated strictly on its own merit, no cost information shall be included.

### B. Format and Content.

In order to produce a comprehensive application for this solicitation, the applicant is required to address, at a minimum, the areas listed below. To help facilitate the review process and to ensure addressing all the review criteria, the applicant shall use the following Table of Contents when preparing the technical application.

## TABLE OF CONTENTS

	<u>Page</u>
PUBLIC ABSTRACT .....	i
Table of Contents .....	ii
List of Tables .....	iii
List of Figures .....	iv
List of Acronyms .....	v

### GENERAL TECHNICAL INFORMATION

1.	ENERGY AND ENVIRONMENTAL BENEFITS .....	#
2.	DEMONSTRATION CONCEPT AND PLAN .....	#
3.	APPLICANT/TEAM CAPABILITIES AND FACILITIES .....	#
4.	COMMERCIALIZATION APPROACH .....	#

TECHNICAL EXCEPTIONS AND DEVIATIONS .....	#
---	---

### APPENDICES

A.	RESUMES .....	A1
B.	LETTERS OF COMMITMENT .....	B1
C.	ADDITIONAL PERTINENT PUBLICATIONS (if any) .....	C1
D.	STATEMENT OF PROJECT OBJECTIVES .....	D1

**Public Abstract:** This section shall contain a public abstract of not more than one (1) typewritten page clearly stating the objectives of research, the title of the project, project benefits, methodology, and sponsoring organization (s). It is a stand-alone document. This abstract may be released to the public by DOE in whole or in part any time. It is, therefore, required that it shall not contain proprietary data or confidential business information.

### GENERAL TECHNICAL INFORMATION

The technical application will consist of the applicant's outline addressing the technical and management aspects of the assistance action, the applicant's capabilities and what the applicant will do to satisfy the requirements of the Statement of Project Objectives. Since the technical information contained in this section will be evaluated to determine such matters as understanding of the work to be performed, technical approach, and potential for completing the desired work, it should be specific and complete in every detail. The application should be practical and be prepared simply and

economically, providing a straightforward, concise delineation of what it is the applicant will do to satisfy the requirements of the Statement of Project Objectives.

In order that the Technical Application may be evaluated strictly on the merit of the material submitted, no cost information is to be included in the Technical Application. Where estimated man-hours will provide clarity, they shall be quoted in man-hour figures only, with no indication as to the cost of these man-hours.

The application shall not merely offer to perform work in accordance with the Statement of Project Objectives but shall describe the actual work proposed.

The applicant shall provide the technical information as follows:

1. **Energy and Environmental Benefits:** Review the developmental history of the proposed technology. Describe, in quantitative terms, successful tests and their significance. Explain quantitatively the major advances that have already been achieved and challenges that remain before the proposed technology or methodology will be ready for commercialization demonstration. Explain in a general way, why and how it is expected that the technology can achieve successful demonstration at initial commercial deployment. If the proposed technology results in the collection of CO<sub>2</sub> that is generated, calculation of thermal efficiency for the process should reflect this fact. Compare, in quantitative terms, the performance of the proposed technology or methodology to current commercial practice for achieving comparable ends and, if appropriate, to other well known technical approaches that are in development. Explain how the proposed technology or methodology represents an important improvement.

If available, show estimates of market share that the proposed technology is expected to capture. Describe the potential for increasing energy efficiency in the domestic forest products industry. Explain the general applicability, timeliness, and economic viability of the proposed technology. Quantify the environmental impacts and benefits. Provide discussions as to the effectiveness of the proposed project in meeting the Environmental Protection Agency (EPA), state environmental quality or protection department, or local regulators' Maximum Achievable Control Technology (MACT) I and proposed II regulations. Relate the potential for enhancing the U. S. Forest Products Industry's economic competitiveness and for reducing the environmental impacts of the domestic forest products industry and/or suppliers and end-users. Discuss the potential benefits to be achieved by the proposed project in positioning the forest products industry as a net producer of power generation. Show how the project will promote safer operating practices in domestic pulp and paper mills.

2. **Demonstration Concept and Plan:** Describe the promise of the technology to meet the needs of the forest products industry toward enhancing the U.S. Forest Products Industry's economic competitiveness, improved energy efficiency, and reduced environmental emissions while providing quality products. Describe attributes of the hardware of the gasification system being proposed, such as environmental performance, efficiency of operation, or

expectations of low- cost producibility. Explain the physical principles upon which the technology is based. As for the systems integration and plant design/visualization methodology, explain what the proposed techniques/software will accomplish and show their significance to achieving goals of the Black Liquor/Biomass Gasification program.

Explain how the proposed technology addresses all applicable “Solicitation Objectives.” Address the entire process, performance targets for thermal efficiency, emissions, and costs.

Provide a description of how the proposed technology functions. Provide preliminary process flow diagram(s) of the device in a favorable configuration for commercial use. Explain the basic characteristics of the proposed technology and systems integration methodology to be pursued. From the substantial analytical work and experimentation that has already been completed, describe how the proposed work comprises the logical next steps in the research and development of the proposed technology or methodology. Describe how the technical feasibility and marketability for the proposed technology has been achieved. Technical feasibility may have been established by a combination of successful experimentation, analytical computation and/or modeling that indicate good prospects for developing a device that will function as envisioned.

Provide a Statement of Project Objectives, Test Plan if appropriate, and description of Project Details as specified in the Outline. Small-scale experimental development and testing are acceptable for a portion of the Project Plan in supporting the demonstration facility prior to or after its initial operation. Provide a clear and concise statement of objectives including a review of supporting data obtained in laboratory and/or pilot scale work completed to date. Provide a project schedule that describes the sequence of project tasks, planned levels of data acquisition, principal milestones, decision points, time for each task, and the planned assignment of responsibilities and level of manpower to complete the demonstration.

**3. Applicant/Team Capabilities and Facilities:** The proposing team shall describe its capabilities by including discussions that:

- a) describe the credentials, capabilities, and experience of key personnel by including, in an appendix, resumes and other information consistent with and appropriate to the role each will play in the proposed project;
- b) document relevant prior or current corporate experience of participating organizations; ability to assemble and successfully a multi-disciplined team with experience and qualifications in the application subject area;
- c) show responsibilities and lines of authority among the various project recipients, including subcontractors if applicable, and the roles of key personnel and percentages of their time devoted to the proposed project;

- d) include a list and brief description of relevant prior or current contracts or grants for the last five years.

The applicant shall describe the type, quality, availability, and appropriateness of the proposed facilities, analytical support, equipment, and demonstration mill site. If extensive equipment is to be utilized, a briefly itemized listing may be included in an appendix to supplement the discussion presented in the body of the application. For proposed projects which may require a pilot plant phase, provide proof of commitment or strong expression of interest by a pulp and paper mill towards providing the site for the demonstration phase of the proposed effort.

- 4. Commercialization Approach:** Describe participation by the forest products industry and suppliers to the forest products industry in preparation of the application and in their level of participation in the past and/or current research activities. Provide the identification of, and commitment to, a viable mechanism, plan, or path to transfer the technology to industry at the earliest practicable time. Provide discussions as to the awareness and timeliness of the proposed project in meeting the EPA, state environmental department, or local regulators' MACT I and proposed MACT II regulation milestones.

## **TECHNICAL EXCEPTIONS AND DEVIATIONS**

This section shall identify and explain any exceptions or deviations taken or conditional assumptions made with respect to the technical requirements of the solicitation.

Any exceptions taken must contain sufficient amplification and justification to permit evaluation. All benefits to the Government shall be explained for each exception taken. Such exceptions will not, of themselves, automatically cause a application to be termed unacceptable. However, a large number of exceptions, or one or more significant exceptions not providing benefit to the Government may result in rejection of the application(s) as unacceptable.

## **STATEMENT OF PROJECT OBJECTIVES INSTRUCTIONS**

All applications must contain a single, detailed Statement of Project Objectives that addresses how the project objectives will be met. The Statement of Project Objectives must contain a clear, concise description of all activities to be completed during project performance and follow the structure discussed below.

Applicants shall prepare the Statement of Project Objectives in the following format:

### TITLE OF WORK TO BE PERFORMED

(Insert title of work to be performed. Be concise and descriptive.)

#### **A. OBJECTIVES**

Include one paragraph on the overall objective(s) of the work. Also, include objective(s) for each phase of the work.

B. SCOPE OF WORK

This section should not exceed one-half page and should summarize the effort and approach to achieve the objective(s) of the work for each Phase.

C. TASKS TO BE PERFORMED

Tasks, concisely written, should be provided in a logical sequence and should be divided into the phases of the project. This section provides a brief summary of the planned approach to this project.

PHASE I

Task 1.0 - (Title)

(Description)

Subtask 1.1 (Optional)

(Description)

Task 2.0 - (Title)

PHASE II (Optional)

Task 3.0 - (Title)

D. DELIVERABLES

The periodic, topical, and final reports shall be submitted in accordance with the attached “Federal Assistance Reporting Checklist” and the instructions accompanying the checklist.

The Recipient shall provide a list of deliverables other than those identified on the “Federal Assistance Reporting Checklist” that will be delivered. These reports shall also be identified within the text of the Statement of Project Objectives.

1. Task 1.1 - (Report Description)

2. Task 2.2 - (Report Description)

E. BRIEFINGS/TECHNICAL PRESENTATIONS (If applicable)

1. The Recipient shall prepare detailed briefings for presentation to the COR at the COR's facility located in Pittsburgh, PA or Morgantown, WV. Briefings shall be given by the Contractor to explain the plans, progress, and results of the technical effort.
2. The Recipient shall provide and present a technical paper(s) at the DOE/NETL Annual Contractor's Review Meeting to be held at the NETL facility located in Pittsburgh, PA or Morgantown, WV.

## **SECTION IV -- EVALUATION AND SELECTION**

### **A. Introduction**

This section of the solicitation presents to the applicant the actual evaluation scheme, as well as the individual criteria used by DOE to evaluate the application.

### **B. General**

It is the policy of DOE that any financial assistance be awarded through a merit-based selection process which means a thorough, consistent and independent examination of applications based on pre-established criteria by persons knowledgeable in the field of the proposed project.

### **C. Preliminary Evaluation (Qualification Criteria)**

In order for your application to be evaluated in the comprehensive evaluation phase of the solicitation, the application should meet certain mandatory requirements set forth below. Failure to meet any one of these preliminary evaluation, qualification criteria may result in the application being eliminated from further competition, and may not be considered in the comprehensive evaluation phase. In the event that an application is eliminated, a notice will be sent to the applicant stating the reason(s) that the application will not be considered for negotiations leading to award under this solicitation.

The application shall be evaluated to determine if it successfully meets all of the following qualification criteria:

- (a) The applicant proposed a minimum cost share of 50 percent of the total estimated cost of the project.
- (b) If the Recipient proposes to use a M&O contractor or National Laboratory, the application contains a letter from the executive Federal agency managing the M&O or National Laboratory authorizing the use of any such entities, along with a statement as to why the work is not otherwise available from the private sector.
- (c) Commitment letter from an existing domestic forest products manufacturing facility for the use of real-estate, integration of operations, and operational support at a specified site within the United States (For proposed projects which may require a pilot plant phase).



## **D. Comprehensive Evaluation**

Applications passing the preliminary evaluation shall be subject to a comprehensive evaluation in accordance with the technical evaluation criteria listed in this section.

The Technical Evaluation is conducted to determine the merits of the technical application with regard to the potential success of the project. Comprehensive evaluation results in a numerical score for each application against each of the technical evaluation criteria.

The Environmental, Health, Safety, and Security (EHSS) Evaluation, which is not point scored, is conducted to determine the completeness of the Environmental Assessment Questionnaire, and to assess the applicant's awareness of EHSS requirements for mitigating project-related EHSS risks and impacts.

The Cost Evaluation, which is not point scored, is conducted to determine the completeness of the cost estimate and the appropriateness and reasonableness of the cost.

## **E. Technical Evaluation Criteria**

Technical applications submitted in response to this solicitation will be evaluated and scored in accordance with the criteria listed below. The applications should be fully responsive to each of the criteria. An application can be awarded a maximum of 100 points during the evaluation according to the points assigned to each criterion.

**Criterion 1 (30 points): Energy and Environmental Benefits** – Applications will be evaluated based on the benefits that the technology will provide to the industry and the nation, and on the quantified level of identified benefits that are specific to the technology being applied. These include: a) potential for increasing energy efficiency in the domestic forest products industry, b) general applicability, timeliness, and economic viability of the proposed technology (i.e., probability of commercial application); c) potential for enhancing the U. S. Forest Products Industry's economic competitiveness of the domestic forest products industry; d) potential for reducing the environmental impacts of the domestic forest products industry and/or suppliers and end-users, e) potential to position the forest products industry as a net producer of power generation and f) promotion of safer operating practices in domestic pulp and paper mills. Application will also be evaluated on the degree to which they meet the EPA, state environmental department, or local regulators' MACT I and proposed MACT II regulations.

**Criterion 2 (25 points): Demonstration Concept and Plan** - The technical potential of the application shall be evaluated considering: a) the responsiveness of the application to meet the needs of the forest products industry in the area of gasification/cogeneration technologies; b) the clarity, completeness, and adequacy of the statement of objectives (including a review of supporting data obtained in laboratory and/or pilot scale work completed to date); c) the technical merit and feasibility of the proposed work (i.e., is it based on sound

scientific/engineering principles and on an understanding of current state of the art in the forest products industry); and d) the adequacy and appropriateness of the schedule (sequence of project tasks, planned levels of data acquisition, principal milestones, decision points, and time for each task) and the planned assignment of responsibilities and level of manpower to complete the demonstration.

**Criterion 3 (25 points): Applicant/Team Capabilities and Facilities** - Capabilities and facilities shall be evaluated considering: a) corporate experience and experience of key personnel within the forest products industry; b) ability to assemble a multi-disciplined team with experience and qualifications in the application subject area; c) knowledge of past advanced developments in the work proposed; d) the availability of equipment, laboratory and demonstration facilities, analytic support and other necessary resources for performing the work proposed; and e) project management experience and methods.

**Criterion 4 (20 points): Commercialization Approach** - The proposed commercialization approach shall be evaluated considering: a) broad support by the forest products industry and suppliers to the forest products industry in participating in the past, current and/or proposed activities; and b) identification of, and commitment to, a viable mechanism, plan, or path to transfer the technology to industry at the earliest practicable time. The commercializing of the proposed technology will be evaluated as to timeliness in meeting the EPA, state environmental department, or local regulators' MACT I and proposed MACT II regulation milestones.

**F. *Intentionally Left Blank***

**G. Cost Information Evaluation Criteria**

Cost applications will not be point scored but will be evaluated in accordance with the following criteria:

- (a) Reasonableness and appropriateness of cost.
- (b) Required cost share and/or in-kind contributions.

**H. Relative Ranking of Technical Criteria**

The evaluation of the technical application will be conducted using preestablished weights to determine the relative merits of an applicant's application in accordance with the technical evaluation criteria. The technical evaluation (Volume II - Technical Application) represents 100% of the total evaluation scoring. Although Volume I--Business and Financial Application will not be point scored, it will be considered in the selection decision and must be addressed.

Relative Order of Importance of Technical Evaluation Criteria:

The following weighting factors will be applied to each criterion to obtain a final evaluation rating for each application.

- |    |  |     |
|----|--|-----|
| 1. | Energy & Environmental Benefits . . . . .            | 30% |
| 2. | Demonstration Concept and Plan . . . . .             | 25% |
| 3. | Applicant/Team Capabilities and Facilities . . . . . | 25% |
| 4. | Commercialization Approach . . . . .                 | 20% |

**I. Program Policy Factor(s)**

Program Policy Factor(s) are those factors that are not indicative of the applicant's individual merit, but are relevant and essential to the process of choosing which application(s) will best achieve the program goals. The following Program Policy Factor shall be considered by the Source Selection Official in the selection process.

A balance of the technology portfolio for the program will be considered. The Department is looking to maximize opportunities for industry and will seek to support technologies that encompass the full spectrum of applications within the industry.

Applications that offer particularly innovative, technically feasible approaches to significantly improving the energy efficiency of the forest products industry are encouraged.

The availability of federal funds and geographic location of sites will be given consideration in the programmatic review of applications.

**J. Basis For Selection and Award**

The Department of Energy anticipates the award of one or more financial assistance instruments to those applicants whose applications are determined to be in the best interest of the Department in achieving the program objectives set forth in this solicitation. Selection of an application by the Department will be achieved through a process of evaluating the merits of the applicants' complete applications, against the evaluation factors set forth in this section and by considering the Program Policy Factor(s).

This process reflects the Department's desire to accept an application based on its potential in best achieving program objectives, rather than solely on evaluated technical merit or cost. Accordingly, the Department of Energy may select for award all, none, or any part of an application, based on its decision as to which meritorious applications best achieve the program objectives set forth in this solicitation.

Selection of a application for award may involve a determination of cost effectiveness, e.g., whether a technically superior application is worth any additional associated cost. Applications that offer levels of cost sharing above the minimum may be considered by the Government to offer advantageous cost effectiveness.

It is important for applicants to note that selection for negotiations will be made entirely on the basis of the applications submitted. Applications should, therefore, address specifically the factors mentioned in the evaluation criteria, and not depend upon reviewers' background knowledge.

## SECTION V -- ELECTRONIC FORMS AND/OR DOCUMENTS

- A. All forms needed for preparation of Volume I are found on the NETL Homepage at: **<http://www.NETL.doe.gov/business/forms/forms.html>** in either WordPerfect or Portable Document Format (PDF). Furthermore, a listing of the Volume I forms is presented in the table below. Please note that all forms were developed using WordPerfect 6.1 and formatted for printing using an HP LaserJet IIISi printer.
- B. To view and print PDF files from the NETL Homepage, one needs to first download and install the free Adobe Acrobat Reader from Adobe Systems, Inc. See our getting started instructions for help. The WordPerfect 6.1 files have been put into self-extracting ZIP files. See our instructions on Unzipping a “Self-Extracting” file for further assistance. For assistance with any of the electronic forms or documents, please send an e-mail to the attention of the Contract Specialist at “**[mundorf@NETL.doe.gov](mailto:mundorf@NETL.doe.gov)**,” or by telephone at (412) 386-4483 (Also reference trouble shooting page).

Note: Forms downloaded in WordPerfect are fillable; however, care should be taken to maintain the original format.

Form #	Title	WP6.1 File	PDF File
assure.fa	Financial Assistance Assurance Package	assurefa.exe	assurefa.pdf
D1600.5	*Assurance of Compliance	1600-5.exe	1600-5.pdf
D4600.4	Federal Assistance Budget Information	4600-4.exe	4600-4.pdf
D4620.1	Budget Page	4620-1.exe	4620-1.pdf
F4220.35	*Additional Representations & Certifications for Federal Financial Assistance	4220_35.exe	4220_35.pdf
F4220.38	*NETL Assurance, Non-Construction Programs	4220_38.exe	4220_38.pdf
nepasol	Environmental Questionnaire for Solicitations	nepasol.exe	nepasol.pdf
SF424	Application for Federal Assistance	424.exe	424.pdf
SF424b	Assurances - Non-Construction Programs	424b.exe	424b.pdf
SFLLL	*Disclosure of Lobbying Activities	lll.exe	lll.pdf
*Form also contained within form file: <u>assure.fa</u> . Provided separately for convenience.			

## SECTION VI - ATTACHMENTS

### ATTACHMENT A

#### PROGRAM TECHNOLOGY DESCRIPTION

The Department is interested in obtaining applications to improve the processing of Black Liquor and Biomass from forest products using gasification systems:

**(1) Black Liquor Gasification Systems:** Kraft black liquor and semi-chem caustic-carbonate liquor are mixtures of dissolved organic components resulting from the processing of wood, inorganic cooking chemicals, and water. Though concentrated by multiple effects evaporators, these liquors still contain a high percentage of water and have sufficient heating value to be considered low quality fuels. The technical topic is for safe, integrated gasification systems which can permit the separation and recovery of the inorganic cooking chemicals while concurrently producing a combustible product gas from the organics. This product gas after cleaning must be a viable low-to-medium caloric value fuel. Key technical gaps that require demonstration include: materials of construction with known life expectancy, gas clean-up and demonstration of integrating gasification, power cycle and pulp mill systems. For systems employing cold gas clean-up, the key gaps are physical scale-up of the gasification processes under development and commercial demonstration. For systems with hot gas clean up, the clean-up system itself must be considered as a technology gap; and

**(2) Forest Products Biomass Gasification Systems:** Wood room waste or hog fuel is conventionally burned in specifically designed boilers so as to capture a portion of the valuable energy sources found in Forest Products mills. They suffer from low power-to-steam output ratio and high capital and maintenance costs. The technical topic is for gasification systems which can utilize these fuels being mostly half water by weight and to produce a higher quality fuel gas. Such systems are required to be able to be integrated with gas turbines and steam turbines for electric power generation. These biomass gasification combined cycle systems must be able to offer a positive contribution to the reduction of greenhouse gas emissions. For systems using low-temperature gasification, destruction/removal of tars and other condensable organic compound clean-up, physical scale-up, and commercial demonstration of the integrated gasification combined cycle systems is an issue and must be proven on a pilot scale.

## **SECTION VI - ATTACHMENTS**

### **ATTACHMENT B**

#### **MODEL COOPERATIVE AGREEMENT**

(End of text for this page)

1. PROJECT TITLE				2. INSTRUMENT TYPE <div><input type="checkbox"/> GRANT      <input type="checkbox"/> COOPERATIVE AGREEMENT</div>			
3. RECIPIENT (Name, address, zip code, area code and telephone no.)				4. INSTRUMENT NO.		5. AMENDMENT NO.	
				6. BUDGET PERIOD FROM:      THRU:		7. PROJECT PERIOD FROM:      THRU:	
8. RECIPIENT PROJECT DIRECTOR (Name and telephone no.)				10. TYPE OF AWARD <div><input type="checkbox"/> NEW      <input type="checkbox"/> CONTINUATION      <input type="checkbox"/> RENEWAL <input type="checkbox"/> REVISION      <input type="checkbox"/> SUPPLEMENT</div>			
9. RECIPIENT BUSINESS OFFICER (Name and telephone no.)							
11. DOE PROJECT OFFICER (Name, address, zip code, telephone no.)				12. ADMINISTERED FOR DOE BY (Name, address, zip code, telephone no.)			
13. RECIPIENT TYPE <div><input type="checkbox"/> STATE GOV'T      <input type="checkbox"/> INDIAN TRIBAL GOV'T      <input type="checkbox"/> HOSPITAL      <input type="checkbox"/> FOR PROFIT ORGANIZATION      <input type="checkbox"/> INDIVIDUAL <input type="checkbox"/> LOCAL GOV'T      <input type="checkbox"/> INSTITUTION OF HIGHER EDUCATION      <input type="checkbox"/> OTHER NONPROFIT ORGANIZATION      <input type="checkbox"/> C    <input type="checkbox"/> P    <input type="checkbox"/> SP      <input type="checkbox"/> OTHER (Specify) _____</div>							
14. ACCOUNTING AND APPROPRIATIONS DATA:						15. EMPLOYER I.D. NUMBER	
a. Appropriation Symbol		b. B&R Number		c. FT/AFP/OC			
16. BUDGET AND FUNDING INFORMATION							
a. CURRENT BUDGET PERIOD INFORMATION				b. CUMULATIVE DOE OBLIGATIONS			
(1) DOE Funds Obligated This Action \$				(1) This Budget Period \$ [Total of lines a.(1) and a.(3)]			
(2) DOE Funds Authorized for Carry Over \$				(2) Prior Budget Periods \$			
(3) DOE Funds Previously Obligated in this Budget Period \$				(3) Project Period to Date \$ [Total of lines b.(1) and b.(2)]			
(4) DOE Share of Total Approved Budget \$							
(5) Recipient Share of Total Approval Budget \$							
(6) Total Approved Budget \$							
17. TOTAL ESTIMATED COST OF PROJECT \$ _____ (This is the current estimated cost of the project. It is not a promise to award nor an authorization to expend funds in this amount.)							
18. AWARD AGREEMENT TERMS AND CONDITIONS This award/agreement consists of this form plus the following: a. Special terms and conditions. b. Applicable program regulations ( <i>specify</i> ) _____ (Date) _____. c. DOE Assistance Regulations, 10 CFR Part-600, as amended. d. Application/proposal dated _____, <input type="checkbox"/> as submitted <input type="checkbox"/> with changes as negotiated.							
19. REMARKS							
20. EVIDENCE OF RECIPIENT ACCEPTANCE  <div>(Signature of Authorized Recipient Official)      (Date)</div> <div>(Name)</div> <div>(Title)</div>				21. AWARDED BY  <div>(Signature)      (Date)</div> <div>(Name)</div> <div>Contracting Officer (Title)</div>			



## **SECTION II -- SPECIAL TERMS AND CONDITIONS**

### **2.1 Prevailing Regulations (NOV 1998)**

As indicated on the face page, Block 18c, this award is subject to the DOE Assistance Regulations of Title 10, Code of Federal Regulations, Part 600. This set of regulations may be found in most major libraries or on the World Wide Web at:

<http://www.pr.doe.gov/fahome.html>

### **2.2 Order of Precedence (MAY 1999)**

In the event of any inconsistency among the provisions of this agreement, the inconsistency shall be resolved by giving precedence as follows: (a) applicable Public Law; (b) the special terms and conditions or schedule of articles; (c) 10 CFR 600; and (d) other documents, exhibits and attachments.

### **2.3 Substantial Involvement Between DOE and the Recipient (DEC 1999)**

It is anticipated that there will be substantial involvement between the DOE and the Recipient during performance of this Cooperative Agreement. The substantial involvement is likely to take the form of review and approval of activities during the project period of one stage before work can begin on a subsequent stage and in sharing of the responsibility for the direction of the project. DOE will most likely review and approve a project plan to determine whether or not to proceed with subsequent tasks of the Statement of Project Objectives. The actual substantial involvement will be determined upon receipt of a successful application and negotiation of the DOE's involvement.

### **2.4 Cost Sharing (NOV 1998)**

The maximum DOE obligation under this agreement is \$[TBD] . Costs incurred in excess of this amount shall be borne solely by the recipient. In the event that costs incurred under this agreement are less than the amount set forth in Block 16.b.(3) of the face page of this award, DOE and the recipient shall share total project costs in accordance with the following percentages:

DOE:	[TBD] %
Recipient:	[TBD] %

To facilitate project decision making, the project is divided into two Budget Periods as follows:

Budget Period 1 - Performance Period [TBD] - NEPA activities, Feasibility Studies, Pilot Plant Research, and Engineering Design \$ [TBD]

Budget Period 2 - Performance Period [TBD]) - Final Design, Construction, Shake-down, and Operations     \$ [TBD]

## **2.5 Funding**

Funding in the amount [TBD ] is obligated and made available for payment of the Government's share of allowable costs. Additional budget period funding is anticipated from future DOE appropriations and intended for future obligation by amendment to this award.

The Recipient shall promptly notify the Contracting Officer in writing of the estimated amount of additional funds, if any, are required to continue timely performance under this award and when the funds will be required. The maximum DOE obligation to the Recipient is shown in Block 16(b) of the DOE Form 4600.1. The Government is not obligated to increase the total dollar amount funded and the Recipient is not obligated to continue performance under this award or otherwise incur costs to the extent that the Government's share of allowable costs would exceed the amount obligated by the Government.

## **2.6 Allowable Preaward Costs (MAR 1999)**

The Recipient is entitled to reimbursement of preaward costs in the amount not to exceed [TBD] of DOE obligations. These costs are limited to work associated with performance of [TBD], incurred during the period starting on [TBD] through the effective start date of this award (Block 7, DOE F 4600.1).

## **2.7 Method of Payment - Payment Management System (PMS) 10 CFR 600.122 (NOV 1998)**

Payment Management System (PMS): The Recipient is required to maintain advances of Federal funds in interest-bearing accounts. Any interest income earned by the Recipient on Federal funds must be remitted at least quarterly to the cognizant DOE office. However, up to \$250 of the interest earned per year may be retained by the Recipient to cover administrative expenses.

Funds advanced to the Recipient must be kept to a minimum amount necessary to meet the Recipient's cash flow needs. Cash needs shall be determined by the Recipient's cash outlay requirements and shall not be based on costs incurred. If funds are erroneously drawn in excess of the Recipient's immediate disbursement needs, the excess funds should be promptly refunded and reissued when needed. The only exception to this is when excess funds will be disbursed by the Recipient within seven calendar days or when the excess funds are less than \$10,000 and will be disbursed within thirty (30) calendar days.

A computer-generated report (PMS 272 -- Federal Cash Transaction Report, Status of Federal Cash) will be furnished by the Department of Health and Human Services (DHHS) to all Recipients on a quarterly basis with active PMS accounts. The Recipient will be required to review the report and certify that the data are correct. In addition to returning the certified report to the DHHS, a copy of the report should be sent to the cognizant Contracting Officer. Unsigned reports will be returned and may cause delays in payment if the report due date has passed.

A detailed statement of costs incurred and the cost sharing amount shall be forwarded to the Contracting Officer concurrent with drawdowns from the PMS.

## **2.8 Acknowledgment of Federal Funding (NOV 1998)**

When issuing statements, press releases, requests for proposals, bid solicitations, and other documents describing this project, the Recipient shall clearly state (1) the percentage of the total cost of the project which will be financed with Federal money, and (2) the dollar amount of Federal funds for the project.

## **2.9 Real Property - None (JAN 1999)**

No real property may be acquired under this award.

## **2.10 Recipient-Acquired Property (MAY 1999)**

Reference Attachment [TBD ] for a listing of property authorized for acquisition under this award. Property acquired by the Recipient under this award shall be managed in accordance with 10 CFR 600.134, and reported as prescribed in Attachment B, Federal Assistance Reporting Checklist. Supplies acquired by the Recipient under this award shall be managed in accordance with 10 CFR 600.135.

## **2.11 Federally Owned Property (Government-Furnished) - None (JAN 1999)**

No Government-furnished property is provided under this award.

## **2.12 Public Access to Information (JULY 1999)**

The Freedom of Information Act, as amended, and the DOE implementing regulations (10 CFR 1004) require DOE to release certain documents and records regarding awards to any person who provides a written request. The intended use of the information will not be a criterion for release. These requirements apply to information held by DOE and do not require Recipients, their subgrantees, or their contractors to permit public access to their records.

### **2.13 National Security (NOV 1998)**

It is not expected that activities under the award will generate or otherwise involve classified information (i.e., Restricted Data, Formerly Restricted Data, National Security Information).

However, if in the opinion of the Recipient or DOE such involvement becomes expected prior to the closeout of the award, the Recipient or DOE shall notify the other in writing immediately. If the Recipient believes any information developed or acquired may be classifiable, the Recipient shall not provide the potentially classifiable information to anyone, including the DOE officials with whom the Recipient normally communicates, except the Director of Classification, and shall protect such information as if it were classified until notified by DOE that a determination has been made that it does not require such handling. Correspondence which includes the specific information in question shall be sent by registered mail to U.S. Department of Energy, Attn.: Executive Assistant for Defense Programs, DP-4, 4A-019/FORS, 1000 Independence Avenue, Washington, D.C. 20585. If the information is determined to be classified, the Recipient may wish to discontinue the project, in which case the Recipient and DOE shall terminate the award by mutual agreement. If the award is to be terminated, all materials deemed by DOE to be classified shall be forwarded to DOE, in a manner specified by DOE, for proper disposition. If the Recipient and DOE wish to continue the award, even though classified information is involved, the Recipient shall be required to obtain both personnel and facility security clearances through the Office of Safeguards and Security for Headquarters awarded awards obtained through DOE field organizations. Costs associated with handling and protecting any such classified information shall be negotiated at the time the determination to proceed is made.

### **2.14 Notice Regarding the Purchase of American-Made Equipment and Products -- Sense of Congress (NOV 1998)**

It is the sense of the Congress, that to the greatest extent practicable, all equipment and products purchased with funds made available under this award should be American-made.

### **2.15 Lobbying Restriction (Department of Interior and Related Agencies Appropriations Act, 2000)(DEC 1999)**

The contractor or awardee agrees that none of the funds obligated on this award shall be made available for an activity or the publication or distribution of literature that in any way tends to promote public support or opposition to any legislative proposal on which Congressional action is not complete. This restriction is in addition to those prescribed elsewhere in statute and regulation.

A copy of the DOE "Lobbying Brochure" which provides a summary of the statutory and regulatory restrictions regarding lobbying activities for Federal contractors can be found at (<http://www.pr.doe.gov/lobbying.html>).

## **2.16 Notice Regarding Unallowable Costs and Lobbying Activities (NOV 1998)**

Recipients of financial assistance are cautioned to carefully review the allowable cost and other provisions applicable to expenditures under their particular award instruments. If financial assistance funds are spent for purposes or in amounts inconsistent with the allowable cost or any other provisions governing expenditures in an award instrument, the government may pursue a number of remedies against the Recipient, including in appropriate circumstances, recovery of such funds, termination of the award, suspension or debarment of the Recipient from future awards, and criminal prosecution for false statements.

Particular care should be taken by the Recipient to comply with the provisions prohibiting the expenditure of funds for lobbying and related activities. Financial assistance awards may be used to describe and promote the understanding of scientific and technical aspects of specific energy technologies, but not to encourage or support political activities such as the collection and dissemination of information related to potential, planned or pending legislation.

## **2.17 Year 2000 Compliance (NOV 1998)**

Year 2000 compliant means, with respect to information technology, the information technology accurately processes date/time data (including, but not limited to, calculating, comparing, and sequencing) from, into, and between the twentieth and twenty-first centuries, and the years 1999 and 2000 and leap-year calculations, to the extent that other information technology, used in combination with the information technology being acquired, properly exchanges date/time data with it.

The Recipient assures, by acceptance of this award, that items delivered under this contract are year 2000 compliant.

## **2.18 Reporting (NOV 1998)**

Failure to comply with the reporting requirements contained in this award will be considered a material noncompliance with the terms of the award. Noncompliance may result in a withholding of future payments, suspension or termination of the current award, and withholding of future awards. A willful failure to perform, or of unsatisfactory performance of this and/or other financial assistance awards, may also result in a debarment action to preclude future awards by Federal agencies.

## **2.19 Key Personnel (NOV 1998)**

Recipient personnel considered to be essential and key to the work being performed hereunder are specified below.

<u>NAME</u>	<u>TITLE</u>	<u>TELEPHONE</u>
[ TBD ]	[ TBD ]	[ TBD ]

The personnel specified in this clause are considered to be essential to the project. Before diverting any key personnel to work outside the scope of this award, the Recipient shall notify the Contracting Officer reasonably in advance and shall submit justification (including proposed substitutions) in sufficient detail to permit evaluation of the impact on the project. No key personnel may be substituted without the Contracting Officer's approval. Such approval shall be obtained in advance of the substitution, except that the Contracting Officer may ratify a substitution which, because of exigent circumstances, was made before the Recipient could request and/or obtain the Contracting Officer's approval.

## **2.20 Safety & Health and Environmental Protection (JAN 1999)**

The Recipient shall implement the DOE work in accordance with all applicable Federal, State, and local laws, including codes, ordinances, and regulations, covering safety, health, and environmental protection.

The Recipient agrees to include this clause in first-tier subcontracts and agrees to enforce the terms of this clause.

## **2.21 Permits and Licenses (AUG 1999)**

Within sixty (60) days of award, the Recipient shall submit to the DOE Contracting Officer's Representative (COR) a list of ES&H approvals that, in the Recipient's opinion, shall be required to complete the work under this award. The list shall include the topic of the approval being sought, the approving authority, and the expected submittal/approval schedule. The COR shall be notified as specific items are added or removed from the list and processed through their approval cycles.

The Recipient agrees to include this clause in first-tier subcontracts and agrees to enforce the terms of this clause.

## **2.22 National Environmental Policy Act (NEPA) - Prior Approvals**

The National Environmental Policy Act of 1969 (NEPA) requires that all federal agencies consider the impacts of their projects on the human environment. As part of the DOE's NEPA requirements, the awardee shall be required to supply to the DOE certain environmental information. DOE funds may *not* be expended on final design, construction, or operations or in a manner inconsistent with 40 CFR 1506.1 until the DOE notifies the awardee that all NEPA requirements have been satisfied.

## **2.23 Project Decision Making**

### **(A) Project Evaluation.**

Within 90 days after the beginning of the Budget Period, the Recipient shall submit a Project Evaluation Plan (Plan) for DOE review and approval. The Plan must identify and describe the criteria by which the technical and economic feasibility of the Project, based on the Recipient's accomplishments during the Budget Period, are to be evaluated. The Recipient may submit a revised Plan to DOE for review and approval if the technical or economic conditions change to the extent that the existing technical and economic criteria cannot be met, or Project feasibility is adversely affected.

The DOE approved Plan shall be used by the Recipient to prepare a Project Evaluation Report which shall be submitted no later than 60 days before the end of the Budget Period. DOE shall use the approved Plan in evaluating the Recipient's Evaluation Report and in deciding whether any accompanying continuation application will be approved.

### **(B) Continuation Applications.**

If the Recipient wishes to continue to obtain DOE Cost-sharing for the Project beyond the current Budget Period, the Recipient shall submit, no later than 60 days before the end of the current Budget Period, a continuation application which contains the following:

- (1) The Project Evaluation Report which shall describe in detail the status of the Project and the technical progress made during the Budget Period.
- (2) A detailed description of the Recipient's plan for conducting the Project during the next Budget Period.
- (3) A detailed Budget by Project Phase for the next Budget Period, including the proposed value of each in-kind contribution and an estimate of unobligated balances.

(4) The continuation application to proceed to the second and final Budget Period shall contain sufficient information and supporting documentation to satisfy DOE that the Recipient has the financial capability to complete the project.

(5) An analysis of life-cycle costs, including design, construction, operation, and maintenance costs.

(C) Approval/Disapproval of Continuation Applications

DOE shall approve or disapprove a timely continuation application as soon as practicable, and not later than 30 days before the expiration of the current Budget Period. DOE will approve the continuation application provided the criteria in the approved Project Evaluation Plan are met and appropriated funds are available for the Project.

(D) Limitation of Cost Liability

If the Recipient does not submit a continuation application (i.e., withdraws from the Project) or if DOE does not make a Continuation Award, the liability of DOE shall be limited to its share of allowable costs incurred during the current Budget Period.

## **2.24 Insurance and Indemnity**

In addition to any insurance which is required under paragraph (A) and which may be required under paragraph (B) of this Article, the Recipient shall acquire and thereafter maintain worker's compensation, employer's liability, comprehensive general liability (bodily injury), and comprehensive automobile liability (bodily injury and property damage) insurance, and such other insurance coverage as the Recipient normally carries for similar projects. With the approval of the DOE Contracting Officer, the Recipient may maintain a self-insurance program for any of the coverages specified in this Article; provided that, with respect to worker's compensation, the Recipient is qualified under applicable statutory and regulatory authority. All insurance required pursuant to the provisions of this Article shall be in such form, in such amounts, for such periods of time, and provided by such insurance carriers as the DOE Contracting Officer may approve. Such review and approval shall not be unreasonably withheld.

(A) Hazards (Property Damage)

The Recipient will provide hazard insurance (theft, fire, windstorm, water damage, etc.) covering the materials, equipment, and structures acquired or constructed under this Cooperative Agreement. Proceeds from such insurance may be used to replace the damaged or destroyed property. During the term of this Cooperative Agreement, if the Recipient decides not to replace or repair the property, the insurance proceeds will be paid to DOE and to the Recipient in the same ratio as the Cost-share formula applicable to the Budget Period of the Cooperative Agreement when the equipment or property was



purchased. Any such payment of insurance proceeds to DOE shall constitute a credit against the Recipient's repayment obligation to DOE under the Repayment Agreement.

(B) Flood Insurance

If funds under this Cooperative Agreement are used to acquire or construct property or equipment for use in an identified flood plain area in the United States having special flood, special flood-related erosion, or special mudslide (i.e., mud flow) hazards, the Recipient shall obtain flood insurance as required by the Flood Disaster Protection Act of 1973 (42 U.S.C. 4002, 4012a, 4105), as amended. Proceeds from such insurance may be used to replace or repair the damaged or destroyed property. During the term of this Cooperative Agreement, if the Recipient decides not to replace or repair the property, the insurance proceeds will be paid to DOE and to the Recipient in the same ratio as the Cost-share formula applicable to the Budget Period of the Cooperative Agreement when the equipment or property was purchased. Any such payment of insurance proceeds to DOE shall constitute a credit against the Recipient's repayment obligation to DOE under the Repayment Agreement.

(C) Indemnity

The Recipient shall indemnify the Government and its officers, agents, or employees for any and all liability, including litigation expenses and attorneys' fees, arising from suits, actions, or claims of any character for death, bodily injury, or loss of or damage to property or to the environment, resulting from the fault or negligence of the Recipient in performing the Project under this Cooperative Agreement. Nothing herein shall require the Recipient to indemnify the Government and its officers, agents, or employees for any liability resulting from the fault or negligence of the Government.

DOE shall not grant the continuation application for Budget Period 2 unless the Recipient has demonstrated that it has secured insurance in amounts adequate to fulfill the requirements of this paragraph (C). The Recipient may undertake a risk analysis, with no reimbursement by the DOE, as part of the phase 1 activities, with the objective of quantifying the risks attendant with testing and operations of the plant. The results of such risk analysis will be considered by the Government in establishing the adequacy of the indemnity. The cost of insurance, or any financial cost associated with providing this indemnity are not allowable costs under this Cooperative Agreement.

(D) Commercial Liability Insurance

The Recipient shall carry general commercial liability insurance in an appropriate amount for injury of property and life to others. Such insurance shall name the Government as an added insured and will provide a waiver of subrogation. The Recipient will require all first tier subcontractors to also carry such insurance in an amount requisite with the risks of

their obligations: such insurance will name the Recipient and the Government as added insured and will provide a waiver of subrogation.

(E) Indemnification Flow Down

The Recipient shall incorporate in its contracts with all first tier subcontractors an indemnity provision wherein the contractor indemnifies the Government and its officers, agents, or employees for any and all liability, including litigation expenses and attorneys' fees, arising from suits, actions, or claims of any character for death, bodily injury, or loss of or damage to property or to the environment, caused by the fault or negligence of such contractor in performing their obligations under such contract. Further, such contracts shall provide the Government the right to directly enforce the indemnity insuring to its benefit. Self-insurance by a subcontractor shall be reviewed and approved by the DOE Contracting Officer, such review and approval shall not be unreasonably withheld.

**2.25 Program Income (DEC 1999)**

Should any program income be derived from the demonstration of the technology under this agreement, it shall be retained by the recipient and used in accordance with 10 CFR 600.124 (b).

**2.26 Paperwork Reduction (NOV 1998)**

The award is subject to the requirements of the Paperwork Reduction Act of 1980 as implemented by the Office of Management and Budget rules, "Controlling Paperwork Burdens on the Public," published at 5 CFR 1320. These requirements apply if the Recipient will collect information from ten (10) or more respondents at the specific request of DOE, or if the award requires specific DOE approval of the information collection or the collection procedures.

The Recipient shall submit any proposed sponsored information collection to the person identified on the DOE F 4600.1 (Award Face Page, Block 12). The proposal shall be submitted at least 120 days prior to the intended date of information collection. DOE will seek the requisite approval from the Office of Management and Budget (OMB) and will promptly notify the Recipient of the disposition of the request.

## **SECTION III -- INTELLECTUAL PROPERTY PROVISIONS**

### **3.1 Intellectual Property Provisions (JAN 1999)**

The patent and technical data clauses included in this section apply to this award. As used in these applicable clauses, the term "Patent Counsel" refers to the following point of contact:

Intellectual Property Law Division  
U.S. Department of Energy  
Chicago Operations Office  
9800 South Cass Avenue  
Argonne, IL 60439

In any of the FAR and DEAR clauses contained in this section, use of the term "Contract" means "Award" and "Contractor" means "Recipient."

The Recipient shall include intellectual property clauses in any contract awarded in accordance with requirements of the clauses in this section and of 10 CFR Part 600.27.

### **3.2 Publication of Results/Acknowledgment Statement (JAN 1999)**

Publication of the results of the award is encouraged subject to any applicable restrictions in 10 CFR 600.27 (Patent and Data Provisions). Publications, as well as reports prepared under this award, shall contain the following acknowledgment statement:

"This (describe material) was prepared with the support of the U.S. Department of Energy, under Award No. DE-[ **TBD** ]. However, any opinions, findings, conclusions, or recommendations expressed herein are those of the author(s) and do not necessarily reflect the views of the DOE."

### **3.3 Recipient Press Releases (APR 1998)**

The DOE policy and procedure on planned press releases requires that all Recipient press releases be reviewed and approved by DOE prior to issuance. Therefore, the Recipient shall, at least ten (10) days prior to the planned issue date, submit a draft copy to the Contracting Officer of any planned press releases related to work performed under this award. The Contracting Officer will then obtain necessary reviews and clearances and provide the Recipient with the results of such reviews prior to the planned issue date.

### **3.4 Confidential Business Information (NOV 1998)**

Data represented to the Department as being confidential business information, and which does not include "Technical Data" as that term is defined in 52.227-14 Rights in Data General clause of this agreement, shall be submitted as an attachment to the required reports and will be withheld from disclosure outside NETL to the extent permitted by law, provided such attachment and each page therein is stamped with the following legend and no other:

#### **CONFIDENTIAL BUSINESS INFORMATION**

The Recipient considers the data furnished herein to contain confidential business information which is to be withheld from disclosure outside NETL to the extent permitted by law.

### **3.5 Clauses Incorporated by Reference (AUG 1999)**

This solicitation incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

**Federal Acquisition Regulations (FAR) (Clauses starting with 52):**

<http://www.arnet.gov/far/index.html>

**Department of Energy Acquisition Regulations (DEAR) (Clauses starting with 952)**

<http://www.pr.doe.gov/dear.html>

**52.227-1 AUTHORIZATION AND CONSENT. (JUL 1995) -- ALTERNATE I (APR 1984)**

**52.227-2 NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT. (AUG 1996)**

**52.227-3 PATENT INDEMNITY. (APR 1984)**

**52.227-6 ROYALTY INFORMATION (JUN 1987)**

**952.227-9 REFUND OF ROYALTIES. (MAR 1995)**

**952.227-11 PATENT RIGHTS-RETENTION BY THE CONTRACTOR (SHORT FORM). (FEB 1995)**

**952.227-13 PATENT RIGHTS-ACQUISITION BY THE GOVERNMENT. (SEP 1997)**

52.227-14 RIGHTS IN DATA -GENERAL. (JUN 1987) WITH ALTERNATE V (JUN 1987) AS AMENDED BY DEAR 927.409 (JAN 1999)

52.227-14 RIGHTS IN DATA GENERAL. (JUN 1987) ALTERNATE II (JUN 1987)

52.227-14 RIGHTS IN DATA GENERAL. (JUN 1987) ALTERNATE III (JUN 1987)

52.227-16 ADDITIONAL DATA REQUIREMENTS. (JUN 1987)

52.227-23 RIGHTS TO PROPOSAL DATA (TECHNICAL). (JUN 1987)

952.227-84 NOTICE OF RIGHT TO REQUEST PATENT WAIVER (JUN 1987)

#### **SECTION IV -- LIST OF ATTACHMENTS**

Attachment A -- Statement of Project Objectives

Attachment B -- Federal Assistance Reporting Checklist

Attachment C -- Budget Page(s)

Attachment [ TBD ] -- Recipient-Acquired Property

Attachment [ TBD ] -- Federally Owned Property -- Government Furnished

**ATTACHMENT A -- STATEMENT OF PROJECT OBJECTIVES (JAN 1999)**

The Statement of Project Objectives will be inserted on this page upon award.

**The applicant must prepare the Statement of Project Objectives and include it as an Appendix to Volume II - Technical Application. Instructions for preparation of this document can be found in Section III.**

**ATTACHMENT B -- FEDERAL ASSISTANCE REPORTING CHECKLIST (JAN 1999)**

NETL F 540.3-1#  
(8/99) OPI=PS10  
(Previous Editions Obsolete)

**U.S. DEPARTMENT OF ENERGY**  
**National Energy Technology Laboratory**

# FEDERAL ASSISTANCE REPORTING CHECKLIST

<b>1. Awardee:</b>	<b>2. Identification Number:</b>																																																																																																																		
<b>3. Report Submission Address:</b> <i>The requested quantity of all required report deliverables shall be submitted to the following address:</i> <p align="center"><b>NETL AAD DOCUMENT CONTROL BLDG. 921</b>  <b>U.S. DEPARTMENT OF ENERGY</b>  <b>National Energy Technology Laboratory</b>  <b>P.O. BOX 10940</b>  <b>PITTSBURGH, PA 15236-0940</b></p>																																																																																																																			
<b>4. Planning and Reporting Requirements:</b> <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width:50%;"></th> <th style="width:15%;">Form No.</th> <th style="width:10%;">Freq.</th> <th style="width:25%;">Number of Copies</th> </tr> </thead> <tbody> <tr> <td colspan="4"><b>A. PROGRAM/PROJECT MANAGEMENT</b></td> </tr> <tr> <td><input type="checkbox"/> Federal Assistance Milestone Plan</td> <td>DOE F 4600.3</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Milestone Log</td> <td>DOE F 4600.3A</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Federal Assistance Management Summary Report</td> <td>DOE F 4600.5</td> <td></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Federal Assistance Program/Project Status Report</td> <td>DOE F 4600.6</td> <td align="center">Q</td> <td align="center">2</td> </tr> <tr> <td><input checked="" type="checkbox"/> Financial Status Report</td> <td>SF-269 or SF-269A</td> <td align="center">Q</td> <td align="center">3</td> </tr> <tr> <td><input type="checkbox"/> Federal Cash Transaction Report</td> <td>SF-272</td> <td></td> <td></td> </tr> <tr> <td colspan="4"><b>B. TECHNICAL (One paper copy and one PDF electronic file copy)</b></td> </tr> <tr> <td><input checked="" type="checkbox"/> Technical Progress Report</td> <td align="center">None</td> <td align="center">Q</td> <td align="center">2</td> </tr> <tr> <td><input checked="" type="checkbox"/> Topical Report</td> <td align="center">None</td> <td align="center">A</td> <td align="center">2</td> </tr> <tr> <td><input checked="" type="checkbox"/> Final Report</td> <td align="center">None</td> <td align="center">F</td> <td align="center">2</td> </tr> <tr> <td colspan="4"><b>C. ENVIRONMENTAL</b></td> </tr> <tr> <td><input checked="" type="checkbox"/> Hazardous Substance Plan</td> <td align="center">None</td> <td align="center">O</td> <td align="center">3</td> </tr> <tr> <td><input checked="" type="checkbox"/> Hazardous Waste Report</td> <td align="center">None</td> <td align="center">F</td> <td align="center">3</td> </tr> <tr> <td><input type="checkbox"/> Environmental Compliance Plan</td> <td align="center">None</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Environmental Monitoring Plan</td> <td align="center">None</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Environmental Status Report</td> <td align="center">None</td> <td></td> <td></td> </tr> <tr> <td colspan="4"><b>D. PROPERTY</b></td> </tr> <tr> <td><input type="checkbox"/> Annual Report of Property in the Custody of Contractors</td> <td>F 580.1-8</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> High Risk Property Report</td> <td>F 4440.5</td> <td></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Report of Termination or Completion Inventory</td> <td>SF-1428 or SF-120</td> <td align="center">FC</td> <td align="center">1</td> </tr> <tr> <td colspan="4"><b>E. EXCEPTION</b></td> </tr> <tr> <td><input type="checkbox"/> Conference Record</td> <td align="center">None</td> <td></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Hot Line Report</td> <td align="center">None</td> <td align="center">A</td> <td align="center">2</td> </tr> <tr> <td><input checked="" type="checkbox"/> Journal Articles/Conference Papers and Proceedings</td> <td align="center">None</td> <td align="center">A</td> <td align="center">2</td> </tr> <tr> <td><input type="checkbox"/> Software</td> <td></td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Other _____</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					Form No.	Freq.	Number of Copies	<b>A. PROGRAM/PROJECT MANAGEMENT</b>				<input type="checkbox"/> Federal Assistance Milestone Plan	DOE F 4600.3			<input type="checkbox"/> Milestone Log	DOE F 4600.3A			<input type="checkbox"/> Federal Assistance Management Summary Report	DOE F 4600.5			<input checked="" type="checkbox"/> Federal Assistance Program/Project Status Report	DOE F 4600.6	Q	2	<input checked="" type="checkbox"/> Financial Status Report	SF-269 or SF-269A	Q	3	<input type="checkbox"/> Federal Cash Transaction Report	SF-272			<b>B. TECHNICAL (One paper copy and one PDF electronic file copy)</b>				<input checked="" type="checkbox"/> Technical Progress Report	None	Q	2	<input checked="" type="checkbox"/> Topical Report	None	A	2	<input checked="" type="checkbox"/> Final Report	None	F	2	<b>C. ENVIRONMENTAL</b>				<input checked="" type="checkbox"/> Hazardous Substance Plan	None	O	3	<input checked="" type="checkbox"/> Hazardous Waste Report	None	F	3	<input type="checkbox"/> Environmental Compliance Plan	None			<input type="checkbox"/> Environmental Monitoring Plan	None			<input type="checkbox"/> Environmental Status Report	None			<b>D. PROPERTY</b>				<input type="checkbox"/> Annual Report of Property in the Custody of Contractors	F 580.1-8			<input type="checkbox"/> High Risk Property Report	F 4440.5			<input checked="" type="checkbox"/> Report of Termination or Completion Inventory	SF-1428 or SF-120	FC	1	<b>E. EXCEPTION</b>				<input type="checkbox"/> Conference Record	None			<input checked="" type="checkbox"/> Hot Line Report	None	A	2	<input checked="" type="checkbox"/> Journal Articles/Conference Papers and Proceedings	None	A	2	<input type="checkbox"/> Software				<input type="checkbox"/> Other _____			
	Form No.	Freq.	Number of Copies																																																																																																																
<b>A. PROGRAM/PROJECT MANAGEMENT</b>																																																																																																																			
<input type="checkbox"/> Federal Assistance Milestone Plan	DOE F 4600.3																																																																																																																		
<input type="checkbox"/> Milestone Log	DOE F 4600.3A																																																																																																																		
<input type="checkbox"/> Federal Assistance Management Summary Report	DOE F 4600.5																																																																																																																		
<input checked="" type="checkbox"/> Federal Assistance Program/Project Status Report	DOE F 4600.6	Q	2																																																																																																																
<input checked="" type="checkbox"/> Financial Status Report	SF-269 or SF-269A	Q	3																																																																																																																
<input type="checkbox"/> Federal Cash Transaction Report	SF-272																																																																																																																		
<b>B. TECHNICAL (One paper copy and one PDF electronic file copy)</b>																																																																																																																			
<input checked="" type="checkbox"/> Technical Progress Report	None	Q	2																																																																																																																
<input checked="" type="checkbox"/> Topical Report	None	A	2																																																																																																																
<input checked="" type="checkbox"/> Final Report	None	F	2																																																																																																																
<b>C. ENVIRONMENTAL</b>																																																																																																																			
<input checked="" type="checkbox"/> Hazardous Substance Plan	None	O	3																																																																																																																
<input checked="" type="checkbox"/> Hazardous Waste Report	None	F	3																																																																																																																
<input type="checkbox"/> Environmental Compliance Plan	None																																																																																																																		
<input type="checkbox"/> Environmental Monitoring Plan	None																																																																																																																		
<input type="checkbox"/> Environmental Status Report	None																																																																																																																		
<b>D. PROPERTY</b>																																																																																																																			
<input type="checkbox"/> Annual Report of Property in the Custody of Contractors	F 580.1-8																																																																																																																		
<input type="checkbox"/> High Risk Property Report	F 4440.5																																																																																																																		
<input checked="" type="checkbox"/> Report of Termination or Completion Inventory	SF-1428 or SF-120	FC	1																																																																																																																
<b>E. EXCEPTION</b>																																																																																																																			
<input type="checkbox"/> Conference Record	None																																																																																																																		
<input checked="" type="checkbox"/> Hot Line Report	None	A	2																																																																																																																
<input checked="" type="checkbox"/> Journal Articles/Conference Papers and Proceedings	None	A	2																																																																																																																
<input type="checkbox"/> Software																																																																																																																			
<input type="checkbox"/> Other _____																																																																																																																			
<b>5. Frequency Codes and Due Dates:</b> A - As required; for due date of Hot Line Report, Property Reports, and all other reports, see attached text. C - Federal Assistance change/revision, within 15 calendar days after event. F - Final; within ninety (90) calendar days after the project period ends. FC - Final (End of Effort - No Draft); end of effort. M - Monthly; within twenty-five (25) calendar days after end of the report period. O - Once after award; within thirty (30) calendar days after award. Q - Quarterly; within thirty (30) calendar days after end of the calendar quarter or portion thereof. S - Semiannually; within thirty (30) calendar days after end of program half-year. Y - Yearly; 90 calendar days after the end of calendar year.																																																																																																																			
<b>6. Special Instructions:</b> The forms identified in the checklist are available at <a href="http://www.NETL.doe.gov/business/forms/forms.html">http://www.NETL.doe.gov/business/forms/forms.html</a> . Alternate formats are acceptable provided the contents remain consistent with the form. All <b>technical reports</b> submitted to the DOE <b>must</b> be accompanied by a completed and signed <b>NETL F 2050.4</b> addressing patent information.																																																																																																																			



#### **4.1 General Instructions for the Preparation and Submission of Reports (MAY 1999)**

The Recipient shall prepare and submit (postage prepaid) the plans and reports indicated on the "Federal Assistance Reporting Checklist" to the addressee identified on the checklist. The level of detail the Recipient provides in the plans and reports shall be commensurate with the scope and complexity of the effort and shall be as delineated in the guidelines and instructions contained herein. The prime Recipient shall be responsible for acquiring data from any contractors or subrecipients to ensure that data submitted are compatible with the data elements which prime Recipients are required to submit to DOE.

#### **4.2 Federal Assistance Program/Project Status Report (Form 4600.6) (MAY 1999)**

This report is a concise narrative describing the current status of the effort. The report allows Recipients to communicate developments, achievements, changes and problems. The award Recipient enters a brief narrative discussion of the following topics: approach changes; performance variances, accomplishments, or problems; open times; and status assessment and forecast. Each of these topics is addressed, as appropriate, for a given reporting period and the report is submitted periodically, as required, during the life of the project.

#### **4.3 Financial Status Report (Standard Form 269 or 269A)(MAY 1999)**

This report is used for the Recipient to provide regular periodic accounting of project funds expended. The accounting may be on either a cash or accrual basis. Actual total expenditures and obligations incurred, but not paid, are reported for each reporting period for each major activity. They should correlate with those identified on the "Federal Assistance Milestone Plan" when the "Federal Assistance Milestone Plan" is required. Provision is made to identify the Federal and non-Federal share of project outlays for each identified activity.

#### **4.4 Technical Reports (MAY 1999)**

**CAUTION:** Technical reports SHALL NOT include limited rights data (such as restricted, proprietary or patentable information). If requested, Limited Rights Data shall be submitted in a separate proprietary appendix to the technical report. This appendix SHALL NOT be submitted in an electronic format but rather submitted in ONE ORIGINAL AND THREE (3) PAPER COPIES along with the paper version of the technical report deliverable. The appendix shall be referenced in, but not included in, the technical report deliverable under the contract. In accordance with FAR 52.227-14, Rights in Data-General, the appendix must be appropriately marked and identified.

All TECHNICAL REPORTS submitted to the DOE MUST be accompanied by a completed and signed NETL F 2050.4, addressing patent information.

#### **4.5 Technical Progress Report (Annual, Quarterly, and Semi-Annual)(MAY 1999)**

The body of the report should contain a full account of progress, problems encountered, plans for the next reporting period, and an assessment of the prospects for future progress.

The Technical Progress Report should include sufficient detail to allow the work to be reproduced by others. Results and reduced data shall be presented together with a discussion of the relevance of the findings. When experimental systems and/or procedures are being utilized for the first time, they shall be described in detail. This description shall contain detailed information on equipment and procedures utilized, as well as providing a rationale for their use. All data reduction and transformation methods shall be fully documented. For every fourth calendar quarter for quarterly reports or every second half year for semi-annual reports, the report should be expanded to provide for detailed information on the results of the past year, problems encountered, significant accomplishments, listing of publications, presentations, and approaches to be taken the following year.

Informational items in technical progress reports shall include:

Experimental Apparatus -- A comprehensive description, including dimensioned drawings or sketches, of the apparatus and associated diagnostic measurement equipment employed to perform the experimental research.

Experimental and Operating Data -- All experimental data acquired during the course of research including detailed characterization of the sample materials subjected to experimentation.

Data Reduction -- A complete description of the methods employed to transform raw measured data into a form usable for interpretation along with any assumptions or restrictions inherent in the method and the resultant reduced data.

Hypothesis and Conclusions -- Logic for drawing conclusions or developing hypotheses shall be clearly stated along with applicable assumptions or restrictions.

#### **4.6 Final Technical Report (MAY 1999)**

The Final Technical Report shall document and summarize all work performed during the award period in a comprehensive manner. It shall also present findings and/or conclusions produced as a consequence of this work. This report shall not merely be a compilation of information contained in subsequent quarterly, or other technical reports, but shall present that information in an integrated fashion, and shall be augmented with findings and conclusions drawn from the research as a whole.

The Recipient shall deliver a draft copy of the final report thirty (30) days after completion of the project period. The Government shall be allowed thirty (30) days to review the draft copy and to notify the Recipient, in writing, of approval or recommended changes. If the Government does not approve or recommend changes within thirty (30) days of receipt of the draft copy, the report shall be deemed approved. The approved final report is due ninety (90) days after completion of the project period.

#### **4.7 Topical Report (MAY 1999)**

These reports usually provide a comprehensive statement of the technical results of the work performed for a specific task or subtask of the Statement of Project Objectives, or detail significant new scientific or technical advances. If required, DOE shall review and approve the report outline prior to submission of the report.

#### **4.8 Software (MAY 1999)**

Major pieces of computer software developed largely as a result of the performance of this effort shall be delivered to the Government shortly after development or at the completion of the effort, as appropriate. The software shall be delivered together with sufficient documentation concerning its development and use to permit future use by others, and to provide a firm basis for allowing modifications to be made in any subsequent development efforts. Unless otherwise specified, software shall be written in a standard computer language such as Fortran 77, operate on the VAX VMS version 5.1 operating system or an IBM PC-compatible personal computer running MS/DOS, and should not incorporate or be dependent on the use of proprietary software.

#### **4.9 Guidelines for Organization of Technical Reports (MAY 1999)**

The following sections should be included (as appropriate) in technical reports in the sequence shown. Any section denoted by an asterisk is required in all technical reports.

TITLE PAGE\* - The Title Page of the report itself must contain the following information in the following sequence:

Report Title  
Type of Report (Quarterly, Semi-Annual, Annual, Topical, Final)  
Reporting Period Start Date  
Reporting Period End Date  
Principal Author(s)  
Date Report was Issued (Month [spelled out] and Year [4 digits])  
DOE Award Number (e.g., DE-FG26-99NT12345) and if appropriate, task number  
Name and Address of Submitting Organization (This section should also contain the name and address of significant subcontractors or subrecipients who participated in the production of the report.)

DISCLAIMER\* -- The Disclaimer must follow the title page, and must contain the following paragraph:

“This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.”

ABSTRACT\* - Should be a brief, concise summary of the report.

TABLE OF CONTENTS\*

LIST(S) OF GRAPHICAL MATERIALS

INTRODUCTION

EXECUTIVE SUMMARY - This should be a well organized summary that highlights the important accomplishments of the research during the reporting period. It should be no less than one page and no more than two pages in length, and should be single spaced. This summary must be more comprehensive than the traditional “abstract.”

EXPERIMENTAL\* - This should describe, or reference all experimental methods being used for the research. It should also provide detail about materials and equipment being used. Standard methods can be referenced to the appropriate literature, where details can be obtained. Equipment should be described only if it is not standard, or if information is not available through the literature or other reference publications.

RESULTS AND DISCUSSION\* - It is extremely important that this section includes enough relevant data, especially statistical data, to allow the project manager to justify the conclusions. With the relevant data, explain how the data were interpreted and how they relate to the original purpose of the research. Be concise in the discussion on how this research effort solved or contributed to solving the original problem.

CONCLUSION\* - The conclusion should not simply reiterate what was already included in the "Results and Discussion" section. It should, however, summarize what has already been presented, and include any logical implications of how the successes are relevant to technology development in the future. This is extremely important, since "relevancy" continues to be a criterion of the program.

REFERENCES\*

BIBLIOGRAPHY

LIST OF ACRONYMS AND ABBREVIATIONS

APPENDICES (IF NECESSARY)

Company Names and Logos -- Except as indicated above, company names, logos, or similar material should not be incorporated into reports.

Copyrighted Material -- Copyrighted material should not be submitted as part of a report unless written authorization to use such material is received from the copyright owner and is submitted to DOE with the report.

Measurement Units -- All reports to be delivered under this instrument shall use the SI Metric System of Units as the primary units of measure. When reporting units in all reports, primary SI units shall be followed by their U.S. Customary Equivalents in parentheses ( ).

The Recipient shall insert the text of this clause, including this paragraph, in all subcontracts under this award.

Note: SI is an abbreviation for "Le Systeme International d'Unites."

#### **4.10 Electronic Media Standard for Preparation of Technical Reports (MAY 1999)**

##### **FILE FORMAT**

Production of high-quality electronic documents is dependent on the quality of the input that is provided. Thus, the Recipient shall submit one good quality paper copy using either permanent or alkaline paper plus an electronic version of each technical report.

ELECTRONIC REPORTS SHALL BE SUBMITTED IN THE ADOBE ACROBAT PORTABLE DOCUMENT FORMAT (PDF). ELECTRONIC REPORTS SUBMITTED IN A FORMAT OTHER THAN ADOBE WILL BE RETURNED AND THE REPORT CONSIDERED DELINQUENT.

Each report shall be an integrated file that contains all text, tables, diagrams, photographs, schematics, graphs, and charts.

## SUBMISSION FORMAT

The electronic file(s) shall be submitted via diskette or CD-ROM. Diskettes or CD-ROMs must be labeled as follows:

DOE Award Number  
Type/Frequency of Report(s)  
Reporting Period (if applicable)  
Name of submitting organization  
Name, phone number and fax number of preparer

Diskettes -- Diskettes must be 3.5" double-sided, high-density (1.4 M Byte capacity). If file compression software is used to transmit a PDF file spanning more than one diskette, PKZIP from PKWare, Inc., is the required compression software. State the number of diskettes in the set (e.g., 1/3)

CD-ROM -- The electronic file(s) may be submitted on an ISO9660-format CD-ROM.

## FILE NAMING

In naming the electronic file, the Recipient shall use the standard eight-character naming convention for the main file name, and the three character extension applicable to the software use, e.g., .pdf for Adobe.

For the main file name, the first five characters are the last five digits from the award number; e.g., for Award Number DE-FG26-97NT12345, the first five characters are 12345.

The next character represents the technical report and will always be designated as "R."

The remaining two characters indicate the chronological number of the particular type of report; e.g., Quarterly Technical Progress Reports for a 5-year award are numbered R01 through R20. Thus, the main file name for the sixth Quarterly Technical Progress Report under Award No. DE-FG26-99NT12345 would be 12345R06.PDF. If monthly, quarterly, annual, and a final technical report are required, the numbers would run from R01 through R86 (60 monthly reports, 20 quarterly reports, 5 annual reports, and 1 final report).

### **4.11 Environmental (MAY 1999)**

In response to the requirements of the National Environmental Policy Act of 1969 (NEPA) and other related environmental statutes, the National Energy Technology Laboratory (NETL) requires the submission of various documents that assess the environmental aspects and projected impacts of all of its proposed actions. These documents may include the following: (1)

Hazardous Substance Plan, (2) Hazardous Waste Report, (3) Environmental Compliance Plan, (4) Environmental Monitoring Plan, and (5) Environmental Status Reports.

The environmental information provided in these documents will enable NETL to fulfill its responsibilities under NEPA (additional information about the requirements of the National Environmental Policy Act can be found in the DOE NEPA Compliance Guide and 10 CFR 1021) and to monitor the Recipient's compliance with other environmental regulations. The implementation of any task associated with a proposed action will be dependent upon DOE completing necessary NEPA documentation. Therefore, to minimize the risk of project delays, it is imperative that these reports be submitted in a timely manner.

The information contained herein specifies the basic environmental requirements for this award, but it is not to be interpreted as containing all necessary information for any given project. Likewise, certain aspects of the requirements may not be applicable. Accordingly, the level of information provided should be sufficient for DOE to assess the environmental implications of the proposed action.

#### **4.12 Hazardous Substance Plan (MAY 1999)**

The Recipient shall submit a Hazardous Substance Plan not later than thirty (30) days after initial award. The Plan shall specifically identify each Hazardous Substance (as defined under 40 CFR 261, Subpart D, entitled Lists of Hazardous Wastes) anticipated to be purchased, utilized or generated in the performance of this award. For each such Hazardous Substance identified, the Plan shall specifically provide the following information:

- Description of Substance/Chemical
- EPA Hazardous Waste Number
- EPA Hazard Code
- Anticipated Quantity to be purchased, utilized or generated
- Anticipated Hazardous Waste Transporter
- Anticipated Hazardous Waste Disposal Facility Contractor and Location (City/Municipality, State)
- Anticipated Treatment Method

#### **4.13 Hazardous Waste Report (MAY 1999)**

The Recipient shall submit a Hazardous Waste Report at the completion of award performance. The Report shall specifically identify each Hazardous Waste (as defined under 40 CFR 261, Subpart D, entitled Lists of Hazardous Wastes) actually utilized, or generated in the performance of this award. For each such Hazardous Waste identified, the Report shall specifically provide the following information:

Description of Substance/Chemical  
EPA Hazardous Waste Number  
EPA Hazard Code  
Actual Quantity Disposed  
Actual Hazardous Waste Transporter  
Actual Hazardous Waste Disposal Facility Contractor and Location (City/Municipality, State)  
Actual Disposal Date  
Actual Treatment Method

The Hazardous Waste Report is intended as a final reconciliation of anticipated versus actual Hazardous Substances purchased, utilized, or generated in the performance of this award.

#### **4.14 Property Reports (MAY 1999)**

The NETL Property Handbook entitled "Management of Government Property in the Possession of Contractors," contains forms, instructions, and suggested formats for submission of property reports. This handbook can be found at <http://www.NETL.doe.gov/business/index.html>.

#### **4.15 Annual Report of Property in the Custody of Contractors (NETL F 580.1-8) (MAY 1999)**

This report includes **ALL** government-owned and government-furnished property and materials for which the Recipient is accountable to the Government. This report shall also include Government Property at subcontractor's plants and alternate locations. This report is submitted on NETL F 580.1-8 for the period ending September 30 and is due by October 15.

#### **4.16 Report of Termination or Completion Inventory (SF-1428 AND SF-120) (MAY 1999)**

This report submitted on the SF-1428 and SF-120 is due immediately upon completion or termination of the award. The Recipient is required to perform and cause each subcontractor to perform a physical inventory, adequate for disposal purposes, of all Government property applicable to the award.

#### **4.17 High Risk Property Report (NETL 4440.5) (MAY 1999)**

Some property, because of its peculiar nature, its potential impact on public health and safety, on the environment, on security interests, or on proliferation concerns, must be handled, controlled, cleared and disposed of in other than the standard manner. High-risk property includes property which is: 1) nuclear-related; 2) proliferation-sensitive or export controlled; 3) chemically, biologically, or radiologically contaminated; 4) national security/military interests; and 5) hazardous materials and wastes. Further definitions of high-risk property can be found at <http://www.pr.doe.gov/ppl.html>. This report is required by the DOE for the control (acquisition, management and disposal) of high risk property to ensure that such disposition does not adversely



affect public safety and/or the environment, national security, or nuclear nonproliferation objectives of the United States. This report shall be submitted for the period ending September 30 and is due by October 15 of each year.

#### **4.18 Hot Line Report (MAY 1999)**

The "Hot Line Report" may be used to report a major breakthrough in research, development, or design; an event causing a significant schedule slippage or cost growth; an environmental, safety and health violation; achievement of or failure to achieve an important technical objective; or any requirement for quickly documented direction or redirection. The report shall be submitted by the most rapid means available, usually electronic, and should confirm telephone conversations with DOE representatives. Identification as a "Hot Line Report" serves notice at each link in the delivery chain that expedition in handling is required. Unless otherwise agreed by the parties involved, DOE is expected to take action and respond in a similarly timely manner. The report should include:

1. Recipient's name and address;
2. Award title and number;
3. Date;
4. Brief statement of problem or event;
5. Anticipated impacts; and
6. Corrective action taken or recommended.

Hot line reports shall document the incidents listed below:

1. Any single fatality or injuries requiring hospitalization of five or more individuals is to be immediately reported.
2. Any significant environmental permit violation is to be reported as soon as possible, but within 24 hours of the discovery of the incident.
3. Other incidents that have the potential for high visibility in the media are to be reported as quickly as possible, but within 24 hours following discovery.
4. Any failure resulting in damage to Government-owned equipment in excess of \$50,000 is to be reported as quickly as possible, but within 24 hours of the discovery of the failure.
5. Any unplanned event which is anticipated to cause a schedule slippage or cost increase significant to the project is to be reported within 24 hours.
6. Any verbal or written Notice of Violation of any Environmental, Safety, and Health statutes arising from the performance of this award is to be immediately reported.

7. Any accidental spill or release which is in violation of any Environmental, Safety, and Health statutes arising from the performance of this award is to be immediately reported, but within 24 hours of the discovery of the accident.

8. Any incident which causes a significant process or hazard control system failure, or is indicative of one which may lead to any of the above defined incidents, is to be reported as soon as possible, but within 5 days of discovery.

The requirement to submit Hot Line Reports for the incidents identified in 1, 2, 3, 6, or 7 is for the sole purpose of enabling DOE officials to respond to questions relating to such events from the media and other public.

When an incident is reported in accordance with 4, 5, 6, 7, or 8, the Recipient shall conduct an investigation of its cause and make an assessment of the adequacy of resultant action. A written report is required no later than ten (10) calendar days following the incident and shall include an analysis of the pertinent facts regarding the cause, and a schedule of the remedial events and time periods necessary to correct the action.

When an event results in the need to issue a written or verbal statement to the local media, the statement is to be cleared first, if possible, and coordinated with NETL Management and Communications Division, the Contracting Officer's Representative (COR) and the Contracting Officer.

**Attachment C -- Budget Pages (APR 1999)**

The budget documents (DOE Form 4620.1, er F4620.1A, SF424 or the DOE 4600.4) will be inserted on this page upon award.

**The Applicant must prepare the budget documents and include them in Volume I - Business and Financial Application. These document and instructions for completion of the documents can be found on the NETL Homepage at: <http://www.netl.doe.gov/business/forms/forms.html>.**

**Attachment [ TBD ] -- Recipient Acquired Property (JAN 1999)**

Recipient acquired property will be listed on this page upon award.

**Attachment [ TBD ] -- Federally Owned Property -- Government Furnished (AUG 1999)**

The Government does not anticipate providing any Government Furnished Property, however, if Government Furnished Property is proposed, the property will be listed on this page upon award.

ATTACHMENT C

DE-PS26-OONT40772

NON-CONSENT FORM

---

(Applicant) hereby

DENIES consent to evaluation by non-federal personnel.

---

Signature

---

Date

---

Typed Name

---

Title